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STUDIES IN THE DEVELOPMENT OF ORNAMENTS AND JEWELLERY IN PROTO-HISTORIC INDIA

BY

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THE

CHOWKHAMBA SANSKRIT SERIES OFFICE

VARANASI-1 (India)

To my Professor

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de l' Inde et du Sud-Est asiatique

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PREFACE

This work was commenced in January 1950 under the guidance of Professor V. S. Agrawala of the Banaras Hindu University From 1950 to 1953, I devoted myself to the collection of material and for this purpose I visited the museums of Calcutta, Patna, Banaras, Allahabad, Lucknow, Mathura, Madras, Bombay, Karachi and Delhi. In England I examined the material available at the British Museum, the Victoria Albert Museum, the Ashmolean Museum of Oxford and Edinburgh Museum In France I worked at Muse'e de Louvre, Musée Guimet and Muse'e de L' Homme. I consulted the available literature on the subject at the Banaras Hindu University Library, the Sarasvati Bhavan, Banaras, Dr. Bhagawan Das Svādhyāypītha Library at Vidyāpith, the India Office Library, London, the British Museum Library, the Library of the School of Oriental and African Studies, the Senate House Library, London, La Bibliothéque Nationale, Paris, the Library of Muse'e Guimet, the Library of L' Institute d' Art et Archae'ologie Sorbonne and the Library of L' Institute de civilization Indienne á la Sorbonne.

I must at the outset thank all the directors of the museums mentioned above, who very kindly placed at my disposal all the material they had and allowed me to handle them. I am also grateful to the librarians who were generous enough to permit me to sit for long hours in their reading rooms and consult all the books I needed.

I am beholden to Prof. K. de B Codrington for guiding me during my stay at the School of Oriental African studies To Monsieur Piere Dupont my benevolent guide of the University of Paris who continually helped me, I express my sincere gratitude.

I am also thankful to Monsieur Ch. Piccard, Director of institute d' Art et d' Arche'ologie, to Monsieur A. Minard, M. Philliozat Professur au College de France, and Monsieur J. Roger, Director de

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It is difficult to express in words how much I owe to Dr. Vasudeva Sarana Agrawala who first asked me to work on this subject and then helped me throughout by his valuable advice and suggestions.

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I must also thank Mademoiselle Esnoul who helped me to find exact words for the various technical terms used in this work. My thanks are also due to my friend and colleagues who helped me from time to time.

I am obliged to Sri S. C. Pant, Head of the Department of Commercial Economics of the Harish Chandra Degree College for examining the proof of this work at great inconvenience to him.

In the end I must thank Sri Krishna Das Gupta of the Chowkhamba Series was were good enough to publish this work.

Kushasthali,
Varanasi Cant.

Govind Chandra

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ABBREVIATIONS

I. L. N.	-	Illustrated London News.
A. S. I. A. R.	—	Archæological Survey of India Annual Report.
F. E. M.	—	Further excavations at Mohenjodaro —Earnest Mackay.
M. I. C.	—	Mohenjodaro and the Indus Civilsiation—Marshall.
B. M C.	—	British Museum Catalogue.
B. O. L Inst.	—	Bhandarkar Oriental Literary Institute.
W. I. A.	—	Western Indian Art Journal.
J. P. A. S. B.	—	Journal of the proceedings of the Asiatic Society of Bengal.
Ch	-	Chapter.
History	—	History of Indian and Indonasien Art.
J. A. S B.	—	Journal of the Asiatic Society of Bengal.
Ann Bib. of Ind Arch	—	Annual Bibliography of Indian Archæology.
J. R. A. S.	—	Journal of Royal Asiatic Society London.
Arch. Surv. Ind.	—	Archæological Survey of India.
Journ Eng Arch.	--	Journal of English Archæology London.
Journ. Royal Anthrop. Inst.	—	Journal of the Royal Anthropological Institute London.
J. A. O. S.	—	Journal of the American Oriental Society
Arch. Recon.	—	Archæological Reconnaisance in N.W. India & S. E Iran
J. R. A. I.	--	Journal of the Royal Anthropological Institute of Great Britain and Ireland, London.
Cal. Rev.	—	Calcutta Review.
J. U. P. H. S.	--	Journal of the U. P. Historical Society.
V. I.	—	Vedic Index-Keith & Macdonell.
R. V.	—	Ṛg Veda.
E. H.	—	Excavation of Harappa—M. S. Vats.
A. V.	--	Atharva Veda.

Note—Plate and figure numbers given in brackets in the body of the text relate to the plates and figures of this work e.g. [Pl. XXXIII, fig. (a) or fig. 'a'].

decoration, the form and material of adornment which change. And, these changes are brought about by efflux of time, as well as by influences both foreign and indigenous, which can help the archæologist to postulate by comparison, the possible datings of sites where they are found.

Apart from their decorative value, ornaments have been worn as charms and amulets from the ancient days and their study leads us to the sources of various beliefs current among men. In Egypt, China and Mexico, green stones used to be placed in the mouths of the dead as they were supposed to contain life giving substance, and were thought to vitalise the heart, the seat of life.[1] This old conception about green stones still persists, though in a modified form. Green jade to-day is widely believed in Persia and India to have the power of protecting the wearer from heart attacks. Similarly carnelian at one time, was supposed to have the power of protecting a man from the evil eye of his enemies which was, perhaps, the reason why we come across so many carnelian beads on different ancient sites. The same attributes have been now transfered to ruby, and other red stones.

From time to time various precious stones have likewise been connected with the different signs of the Zodiac and worn for receiving special protection from the stars. Even metals have not escaped this fate. *In Yajurveda* we come across a hymn in which it is said that "*Rākṣās* do not harm, the *Piśācās* do not molest the wearer of the gold, because it represents the brilliance of gods. Those who wear gold ornaments live a long time in the abodes of the gods."[2] This belief was not only confined to India. From the very early period, the Egyptians and Sumerians also decorated themselves with gold and silver ornaments,[3] perhaps because they thought that these metals had magical powers. An investigation of ornament symbolism in various parts of the world goes more to confirm than deny the magico-religious value of the jewellery.[4]

The various metals and stones are still supposed to have medicinal value. For example, it is widely believed in India and China

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1. *The New Gresham Encyclopedia*, Vol. VIII, p. 242.
2. *Vājasaneyi Samhitā*, XXXIV-51, 52.
3. Sir Leonard Woolley—*The Development of Sumerian Art*, p. 75.
4. D. Mackay -The Jewelry of Palmyra etc., *Iraq* Vol. XI. part 2, (1949), p. 174.

INTRODUCTION

An investigation of human nature on this hemisphere reveals man's curious fascination for ornaments and jewellery. From the paleolithique age down to the present day, he has collected trinkets like shining pebbles, smooth bone pieces,[1] coloured twigs and similar other attractive objects. With these, he has adorned his person, his house and his pet animals. When metal was not known to him he used to gather oxidised pieces of calcium like shells, teeth, pieces of vertebrae and twigs of trees, out of which he used to fashion his jewellery. Even the mammoth hunters of ancient Moravia in Czechoslovakia seem to have decorated their person with ornaments.[2] Man may have tried to replace one common article by another of more extraordinary variety but he has never been able to shake off his love for ornaments. For, what is the present day ivory if not teeth, pearl, if not oxidised bone, and diamond, rubies, and emeralds, if not stones. It is the colour, the shine, the durability, and the rarity of the objects, which have been the cause of their attraction through the ages. Ordinary shells, ordinary bone pieces, ordinary stones have never held any charm for man. The root cause which inspired the early wearers of jewellery of the stone age to don them on their person was the same as it is to-day. The instincts for acquisition[3] and display have persisted through the ages.

In spite of the observations of philosophers that the practice of wearing ornaments, which presupposes an injury to some part of the body, is a relic of the barbarian manners, the fascination for jewellery and even ear-rings has not yet diminished. Even to-day, women have their ears bored so that they may be able to dangle ear pendants and ear drops The heavy looking jewellery worn by the fashionable women of Europe and America set with large pieces of emeralds, diamond and pearls, and the beautiful rings, tie pins, buttons set with various precious stones, worn by men to-day, are patent examples of this strange allurement. Instincts persist, it is the

1. *Illustrated London News*—July 17, 1937 p. 116.
2. Absoln Karl—The World's Earliest Portrait etc. *Illustrate London News*, Oct. 3, 1937, p. 553, fig 11.
3. Burgess, F. W.—*Antique Jewelry and Trinkets*, p. 2.

that sapphire cures asthma and emerald is efficacious against mental disorders. Similarly coral is supposed to be a specific remedy for stomach troubles. A metal like gold is being extensively used as catalytic agent for several diseases in Europe and America, and compounds of mercury are being manufactured by several European firms for medicinal purposes. In India, a whole pharmacopoeia has developed based on the precious stones and metals[1].

It appears that the ornaments preceded clothing as it is one of the primitive instincts of every animal to decorate himself for attracting his mate and man could not have been an exception. Some of the tribes in India still go without clothing but do not forget to decorate themselves very elaborately with carved vertebrae pierced teeth, feathers, berries and shells. The Cro-Magnon man of the post glacial period who lived in north of Italy and South Western Europe, a contemporary of the reindeer and the hairy mammoth decorated his dead with sea shells, ivory tablets, animal teeth and bones of fish[2].

The earliest metal worked by mankind when he emerged from the stone age was probably copper, as implements and ornaments of this metal occur in every chalcolithic site along with bone jewellery. In the form of nugget, copper must have been easily workable with stone hammers. The art of mixing copper with tin or arsenic[3] to produce bronze must have come to the proto-historic man as a great discovery, for it would have given the metal the necessary hardness and the desired shine. Perhaps gold followed copper and bronze in close succession in the ancient world as the most favoured metal for manufacturing ornaments. Almost at every bronze age site gold ornaments have been found in close proximity to those of copper and bronze.

The so called stone age in India has so far revealed no ornaments worth the name which could be marked out definitely as belonging to a pre-bronze culture[4] except some beads. No remains of the lower Palaeolithic man have so far been discovered[5]. The paintings

1. Saligrama—*Nighanṭa Bhūṣaṇa*, p 771-792.
2. *The New Greshams Encyclopedia*, Ornaments, Vol. VIII, p. 242.
3. Marshall—*Mohenjodaro & the Indus Civilization* Vol II, p. 485.
4. Krishnaswamy, V. D., Stone Age of India—*Ancient India No. 3*, Jan, 1947, p. 11-57.
5. Piggott—*Prehistoric India*, pp. 27, 35-11,

found in the rock shelters of Singhanpur claimed to be of upper Paleolithic period are also not supposed to date before the 5th century B. C.[1]. The megalithic tombs are similarly of relatively later date surviving almost to the dawn of recorded history[2]. It is possible that further excavations may reveal the various bone ornaments worn by the stone age man of India. Till then, we shall have to content ourselves with the bronze age sites of India to work out the development of forms, designs and material for ornaments.

It is in the Indus Valley, the *North Western Frontier Provinces, Baluchistan, Punjab, Gujrat, Rajputana* and *Eastern Punjab* of the undivided India that we have come across fully developed cultures of the Bronze age. The chance discovery of Harappa in 1850 yielded no appreciable results and it was not until 1920 that the attention of the Arcæological Department of India was focussed towards the proto-historic sites of the North and North-West. From 1920 to 1955 more than sixty sites[3] have been explored between Rupar, sixty miles north of Ambala on the left bank of Sutlej[4] and Sutkagen Dor near the coast of Arabian sea three hundred miles west of Karachi. Recently some sites have been found in Saurashtra and Gujrat also which have yielded very encouraging material.[5] These excavations and explorations in the Indus Valley, Baluchistan, the North West Frontier and Gujrat have yielded significant material of a civilization which persisted for almost fifteen hundred years from about 3,000 B. C. We come across here a civilization with a character all its own, bubbling with life and colour. The lowlands of Mohenjodaro and Harappa were not an oasis in the desert; the adjacent hills were also teeming with a variegated life and the distant places like Rangpur and Lothal in Gujrat were constantly receiving impulses from this culture. It is a world indeed, in many of its aspects curiously modern, not only in its ornaments and jewellery, but also in such spheres as sanitary engineering, conveniences, domestic architecture, the lay out of the city, the public

1. D. H Gorden—*Indian Arts & Letters*, Vol. X, p 35-41.
2. Codrington—Indian Cairns and Urn Burials, *Man*, Oct. 1930, p. 190. F. F.
3. Wheeler—*The Indus Civilization*, p. 2.
4. A. Ghosh—*Indian Archaeology*, 1955-56, pp. 7, 69-70.
5. A. Ghosh—*Indian Archaeology*, 1954-55, p. 11-22, pl. XII, XIII, XIV XV, XVI, XVII, etc.

baths, and a system of writing. The high standard of life reached in India in that remote period is strikingly amazing.

Excavations at Mohenjodaro, Harappa, Chanhudaro and Rupar and recently at Rangpur and Lothal, have disclosed dwelling houses which have wells for the supply of drinking water and bath rooms with covered drainage of well burnt bricks for carrying sullage. In general lay out these houses closely resemble those of the 17th and 18th century A. D. in different parts of Northern India[1].

The town planning of the Indus people also discloses several absolutely modern features. The streets are 9 to 34 feet wide regularly aligned dividing the city into rectangles.[2] Both the great cities of Harappa and Mohenjodaro are upwards three miles in circuit.[3] Their layout completely differs from the available town-plans of their Mesopotamian counterpart Ur or Kish where the streets wander and curve.[4] The great ramparts with moats round the cities that have been uncovered are public works of great importance. They were undertaken to protect the cities from the floods of the rivers, as well as to counteract the attacks of the invaders. Strangely enough we also come across some modern civic amenities like street lamp-posts and an elaborate drainge system. Not only were these people fastidious about their living conditions, but they also appear to have been equally discriminate about their food. The specimens of wheat and barley at Mohenjodaro, Harappa and Chanhudaro appear to be of the cultivated variety such as have been found in the pre-dynastic graves of Egypt. Even palm, date, stones have been unearthed[5] which clearly prove that they were being consumed at these centres of civilization. Generally it appears that they ate plenty of fruits, milk, vegetables, fish, beaf pork, poultry,[6] lentils[7] wheat and barley.

The dress[8] of men appears to have consisted of an upper cloth,

1. A number of houses in the old parts of Banaras, Delhi and Patna have almost the same lay-out.
2. Majumdar, R. C.—*Ancient India*, p 20.
3. Wheeler —*The Indus Civilization*, p. 15.
4. Woolley—*Antiq. Journal* XI, (1931) pl. XLVII.
5. Wheeler—*The Indus Civilization* p. 62.
6. Majumdar, R. C.—*op. cit.* 1952, p. 20.
7. Charred peas have been found at Harappa. Wheeler—*The Indus Civilization* p. 62.
8. Marshall—*Mohenjodāro and the Indus Civilization* Vol. I, p. 356.

often decorated with designs like the shawl on the shoulders of the bearded man, and the kilt like garment fastened round the waist like the one seen on the seated alabaster male figure[1]. Some times they wore a conical cap[2] and a coat. The women's dress consisted of a loin cloth held by a wide girdle[3] and an elaborate head gear.

Except for the figure of the bearded man in stone and the dancing girl in bronze, the most important of the artistic products of the Indus civilization for our study are the clay sculptures, which have been found in number large from almost every level. Apart from the animal figurines, the human figurines represent males and females. Though not realistically designed they convey to us the contemporary fashions of dress and ornaments. Unfortunately they have so far not been properly classified and studied and have just been dubbed as crude. Wheeler says 'No special artistry went to the making of these figures'.[4] Unfortunately, he forgets that these are not stone sculptures. Even the present day terracotta figurines of India are idealistic and not realistic. Like the sketch-book-drawings of the artist they were perhaps meant to convey ideas and not forms. It is, therefore, not right to lay stress on their beak like nose or the mouth represented by a horizontal gash[5]. Beauty is no mere accident of lines but innate in the conception of the artist[6].

The so-called seal intanglio of the Indus Civilization are a class by themselves. They are generally square but some of them are[7] also three-sided, triangular in section. They may have been used as amulets for wearing round the necks. The designs on them include a wide range of subjects, the most common being the figure of an animal associated with a group of signs in a semi-pictographic script. Some of these, however, bear only the script and some have human or semi-human forms. Still others have purely linear designs, notably of *svastika*, multiple squares, criss-cross pattern and multiple cross. On the animal seals, the ox or the unicorn is most frequently represented. In front of the

1. Wheeler—*The Indus Civilization*, pl. XVII-A, p. 65.
2. *Ibid*—pl. XVIII-B
3. *Ibid*—pl. XIX.
4. Wheeler—*The Indus Civilization*, p. 68.
5. *Ibid*—p. 68.
6. Woolley—*The Development of Sumerian Art*, (1935), p. 110.
7. Mackay—*Further Excavations at Mohenjodaro*, pl. XCI, 4, etc.

beast is a design which might have represented a standard, or incense burner or simply a manger. Next in popularity is the elephant who is generally represented standing. Similar seals with typically Indian animals have been found at Ur[1], Tell Asmar[2] and Crete[3] from horizons which can be dated to about 2500 B.C. of the seals with human figures the most important are those representing different scenes from life, for example, there is a seal where a man is attacking a buffalo with a barbed spear[4] almost like a *Triśūla*, or the one in which a buffallo is attacking several prostrate human beings. Then, there is a Śiva seal from Mohenjodaro[5]. Here the august person is sitting in the *Yogic* posture, and round him are represented different animals. He is said to be three-faced. Rising from his head is a crown which consists of two horns on the sides and a fan like ornament in the centre. His arms are laden with bangles like the left arm of the bronze dancing girl. A similar seal has also been found at Harappa.[6] These so called seals have at their backs loops with holes and it is quite possible that they were worn threaded to necklaces as amulets.

Of no less importance are the weights and the scales found at Mohenjodaro, Harappa and Chanhudaro[7]. They clearly prove that the people of this ancient civilization had a scientific basis for manufacturing and selling their products. The weights which we come across here are of chert, lime stone, steatite, slate, chalcedony, a black and white schist and a hard black stone perhaps hornblende, carefully finished. They range from large pieces to minute examples, perhaps the small ones of these are of the jewellers. Though

1. G. I. Gadd—Seals of Ancient Indian style found at Ur, *Proceedings of British Academy*, XVIII (1932) p 8, A similar seal from an unrecorded site is in the *British Museum*.
2. Frankfort—The Indus Civilization and the near East—*Annual Bibliography of Indian Archaeology*, Vol. VII (1932), pl. I.
3. Ch. Picard—D'un sceau d' Harappa a l'anneau d'or de Tirynthe,—*Revue Arch.*, Juillet—Décembre (1938) Vol. 12, fig. 1, 2, 3.
4. Mackay—*Further Excavations at Mohenjodaro*, Vol. I, p. 336; Vol. II, pl. LXXXVIII-279.
5. Marshall—*Mohenjodaro & The Indus Civilization*, Vol. I, p. 53, pl. XII-17.
6. Vats—*Excavations at Harappa*, Vol. II, pl. XCIII-303.
7. Wheeler—*The Indus Civilizations*, p. 61.

uninscribed like the present day indigenous weights of Indian jewellers, they are of definite denominations based on the binary system of 1, 2, 4, 8 etc. The traditional Indian ratio of counting on the basis of four appears to have been maintained in manufacturing these pieces[1]. A copper or bronze scale bar has also been found at Mohenjodaro[2] which confirms our surmise that precious articles were actually weighed by the people of the Indus Valley. The measurements of length here followed a decimal system almost like the modern French system as can be seen from a shell fragment found at Mohenjodaro on which the scale markings appear[3].

The life of luxury and ease led by the people of this culture is indicated from the various articles of toilet found here and the ornaments, the coiffure and the dress of the terracotta figurines. Among the objects unearthed are the mirrors, the razors, the combs, the antimony pots, the kohl sticks, the toilet sets, the body scrapers, the buttons, the hair pins etc. Of the mirrors the most notable is the one from Mehi[4] which represents a stylised female figure with prominent breasts, the conventionalised arms akimbo and the head suggested by the round top reflecting the face of the user The razors found at Harappa[5], represent the porfile of a women like that of the dancing girl from Mohenjodaro. Of the combs, we have three varieties, one with a handle at one end for holding it[6], the other 'v' shaped with teeth inside the 'v'[7], and the third with teeth at both ends of 'v'[8]. All of these are of ivory and are decorated with incised concentric circles. This symbol we come across on ivory figures of mother goddesses of the later chalcolithic period. The antimony pots with

1. Hemmy--*Weights at Chanhudaro*, Mackay — *Chanhudaro Excavations*, p 243.
2. Mackay—*Further Excavations at Mohenjodaro*, p. 477.
3. Piggott—*Prehistoric India*, p. 182.
4 Mackay—*Further Excavations*, p 404, Sir Aurel Stein—An Archaeological Tour in Gedrosia, *Memoirs* 43, pl. XXXII Mehi 11. 2. 1. a.
5. Vats —*Excavations at Harappa*, Vol II, pl. CXXV-fig. 46, 47.
6 Vats—*Excavations at Harappa* pl. CXIX, fig. 6, also Mackay—*Further Excavations* pl. XCI fig. 24.
7. Mackay—*op. cit.*, pl. CXI fig. 25.
8 *Ibid*—pl C, fig. 15

the kohl pins[1] having duck heads[2] and the eye paint[3] inside it, show how fastidious were the ladies of this civilization.

Ornaments made of gold, silver, copper, bronze, shell, faience, ivory, pottery and beads of semi-precious stones such as carnelian steatite, agate, serpentine, jasper, amazonite, lapis-lazuli, turquoise, amethyst, gold, silver, copper etc. of various forms have been found at different sites of this civilization. Many of these exhibit high technical skill in their manufacture. From the clay figurines found here it appears that both men and women wore fillets, necklaces, armlets and girdles, while the women in addition to these decorated themselves with elaborate head-dresses, bangles and anklets. In all probability, the ornaments of the rich were, of gold, silver, faience, ivory and of valuable stones ; while the poor wore, jewellery made of bone and pottery. Gorden Child[4] rightly describes this civilization as 'a civilization as old and venerable as the pyramids, and in its wealth and art the peer of ancient Egypt'.

Unfortunately, however, the excavations and explorations of the various proto-historic sites here while extending the glorious story of the ancient Indian civilization backwards to three thousand years before Christ, have not yet satisfactorily determined the cultural contents of the successive periods of this civilization covering well over 1500 years. This situation has arisen to a large extent because of the unscientific excavations conducted prior to 1946. The horizontal digging without a careful stratigraphical recording has resulted in the loss of archæological context of a lot of materials, making it a problem to study the finds in a chronological order and building up a stratigraphy even on that basis. A subjective recording of the changes in the material, forms and designs of pot-sherds, ornaments, seal-amulets and other objects brought about by the progressive development of the culture and possibly influenced by foreign contacts and setting them in their chronological order are the only courses left open to trace the history of the proto-historic culture of India. In such study we can get considerable help from similar or nearly similar finds of the well

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1. Vats—*op. cit.*, pl. CXIX-13, 15, 16.
2. *Ibid*—pl. LXXVIII-19.
3. *Ibid*—Vol. I, p. 312.
4. Childe, G.—The Structure of the past—*The Geographical Magazine*, London 1943, Vol XVI, p. 168.

stratified sites of Iran, Iraq, Mesopotamia and Crete. Some workable data can thus be obtained for their probable dating by tracing the contact of this civilization with other contemporary civilizations of this period.

In this study an attempt is being made here firstly to correlate the jewellery unearthed here with those worn by the figurines for establishing the mode of using them in a particular period; secondly to examine the tools and methods of jewellery manufacture for ascertaining how far these pieces were locally produced ; thirdly to record the various changes in their forms, material and decoration brought about by the efflux of time and by foreign contacts ; fourthly, to suggest the possible trade route through which these influences might have penetrated into India or were exported from this country ; and finally to correlate the Indian pieces with similar or approximately similar datable jewellery from well stratified sites of the west in order to suggest their probable dates and consequently those of their find spots.

The importance of this study in the present context cannot be over emphasised. For, it is acknowledged today that even in a normal scientific excavation the comparison of relevant types and styles of ornaments with a view to recording the development of successive stages of designs is a subject of considerable archæological significance as this was one of the important industries of the ancient world. In a way, their analytical study in the archæological context is more important than that of the pot-sherds, for here, we can find jostling together the various traditions, the unnoticed beliefs, the diverse contacts, the high flights of imagination of a people now no more. In the change of the forms of the ornaments and jewellery and their decorations is hidden the story of the progress of man through the ages.

CHAPTER I

CHAPTER I

HEAD ORNAMENTS

Though traces of protohistoric settlements in different parts of Rajputana,[1] Gujerat,[2] the Punjab[3] and South India[4] have been observed, yet it is in the areas of modern Baluchistan, Sindh, Gujerat,[5] the North Western Frontier Provinces and the Punjab that positive evidence of the earliest towns so far known in India has been found.[6] These habitations go back to about 3,000 B C and their connections with the copper and bronze age cultures of Mesopotamia, Persa, Syria and Crete can be established.[7] It is, therefore, in the light of the whole human progress of this period that the ornaments and jewellery found in the Indus civilization have to be examined. The excavations in Sindh, Baluchistan, and North Western Frontier Provinces have yielded evidence of the existence of a highly cultured people who manufactured and wore delicate and elegant jewellery not very inferior in workmanship or material to those of Ur, Kish, Tell, Asmar or Crete.

The various levels of the protohistoric Indian civilization which have been so far noticed can be roughly grouped under the following heads :

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1. Wheeler—*The Indus Civilization,* p 2, fig. 1.
2. *Indian Archæology,* 1954-55 p. 12, pl. XIV.
3. A full report on the Excavations at Rupar is still awaited. *India,* Government of India Publication, New Delhi 1953 p. 128.
4. Krishnaswamy—Stone age in India. *Ancient India* No. 3—1947 p. 39 *Indian Archæology* 1955-56 p. 70.
5. Recent excavations at Lothal—*Indian Archæology* 1955-56 p. 7, pl.X, XI, XII, full report is still awaited.
6. Piggott—*Prehistoric In ia,* p. 67.
7. Gordon Childe—*New Light on the Most Ancient East,* p. 1 0.

1. Pre-pottery culture (?)[1]
2. Quetta A & B cultures 3,500–3,000 B. C.
3. Amri–Nandara–Nal cultures 3,000 B. C.–1,800 B. C.
4. Zhob culture 3,000 B. C.–2,500 B. C.
5. Kulli–Mehi culture 2,800 B. C.–2,000 B. C.
6. Harappa I culture 2,700 B. C.–2,000 B. C.
7. Harappa-Mohenjodaro culture 2,200 B. C. to 1,800 B. C. (Lothal comes within this period)
8. Jhukar culture 1,800 B. C.
9. Jhangar culture 1,500 B. C.

These divisions are roughly based on colour and designs of potsherds found in situ. Piggott has based his chronology on the excavations at Chanhudaro[2] but since then several new cities have been excavated in Afganistan, Gujerat and the Punjab, though their full stratigraphic reports are still awaited.[3] In these pages an attempt will be made to examine their sequence on the evidence of forms, ornamentation and material of jewellery of different levels.

Quetta Culture—Sir Aurel Stein was able to recover only a few terracotta beads from the sites of Waziristan and North Baluchistan.[4] The recent expedition of 1950–51, led jointly by the American Department of Anthropology and the Department of Archæology of Pakistan in the Quetta-Pishin and Zhob-Loralai areas, has yielded sufficient material of Quetta A and Quetta B cultures for study.[5] Formerly only six chalcolithic sites were known[6] in this area, but now 19 sites have come to light. Cuttings at Kile-Gul Mohammed 400 yards west of Quetta-Sibi road have revealed traces of what may be the earliest Village culture[7] connected with the Indus Civilization, where at a depth of 11.4 meters virgin soil was reached. It was observed

1. Fairservis, W. A. *American Museum Noviates* No 1587 Sept 1952 p. 18.
2. Piggott, S., *The Chronology of Prehistoric North-West India. Ancient India* No. 1 (1946) p. 13.
3. Fairservis—*Op Cit.* Sept. 1952 No. 1587 p. 3, *Indian Archæology* 1955–56 p. 7
4. Sir Aurel Stein—*Archæological tour in Waziristan and North Baluchistan—Arch Surv India Memoirs* No. 37 p. 41.
5. Fairservis *Op. Cit* p. 3.
6. Piggott, S. *A new Prehistoric ceramic from Baluchistan–Ancient India* (1947) No. 3 p. 133
7. Wheeler—*Op. Cit.* p. 9.

on the basis of the stratification of this site that Pre-Kechibeg level should be the pre-pottery culture. The finds here, however, do not include any ornaments. At Kirez site again chalcedony scrapers, alabaster cups, polished bone spatulas were recorded, but no ornaments were found. At Dambsadat[1] three levels of culture were noticed. From the lower level which was marked by a series of small rooms built of sun-baked bricks and mud plaster some clay figurines were found.[2] [Plate I figs. (e) and (f)]. They are unfortunately headless and therefore, it cannot be said what their head ornaments were like. From the next higher level, marked by mud brick terraced platforms some clay figurines were found [Plate I figs. (a) and (b)]. These figurines, though they look like Zhob figurines[3], are different from them. We find that stylistically also they are not all alike, for example figurine 'b' appears to be of an earlier period than figurine 'a'. The head ornament on figurine 'b' consists of a tiara with triangular projections worn well back from the forehead. This tiara covers the ears and a part of the neck, while the form of projections of the tiara on figurine 'a' takes the shape of a hydra-headed serpent's hood and from the tiara is suspended a conical bead dropping on the forehead. These modifications in the style of ornamentation of tiara mark a definite development. The hair of these figurines is fortunately painted black which clearly defines the ornament and leaves no room for conjecture that these projections over the head represent curls of hair.[4] At Dehmorasi 4 miles east of Panjiwahi clay figurines of later Quetta culture were found.[5] They are described as 'Zhob mother Goddesses'; but they are quite unlike them. On their heads they wear ornaments different from those of the Zhob clay figurines [pl. I figs. (c) and (d)]. On figure 'c' the serpent-hood-like ornamentation of tiara of figurine 'a' becomes round ; its base also is further projected towards the forehead which carries a linear ornamentation. On figure 'd' the tiara further shifts towards the forehead and it is surrounded by another metallic piece carrying a linear ornamentation. The rounded points of the ornamentation are inverted. Here it looks as if the

1. It is 11. 7 miles on the Southern side of Nushki Quetta road *Fairservis—American Museum Noviates* p. 13
2. Ibid. p. 31.
3. Piggott—*Prehistoric India* p. 127 fig. 16.
4. Piggott—describing the Zhob figurines says, 'hooded with a Coif or shawl'—*Op. Cit.,* p. 126.
5. Fairservis—*op. cit.* p. 23.

base of the ornament on 'c' has gone to the top. On the head of the Zhob clay figurines the tiara generally is plain. We thus have three levels of this culture, one marked by the ornaments on figure 'a' and 'b' another by 'c' and the third by those on fig 'd'. No fillets or other head ornaments are recorded from these levels.

Amri-Nal Culture[1]—During the excavations of Amri[2], Ghazi Shah[3] Pandi Wahi[4], Lohri[5] and Shah Hassan[6] several pieces of ornaments were discovered. Among these is a copper foil which was found at Ghazi Shah[7] measuring l. ·65″ in length and. ·35″ in breadth. Evidently it is a part of a fillet, an ornament which we come across so often on the heads of the clay figurines of the Indus Valley Civilization. Another piece of copper foil was found at Lohri[8] measuring ·3″ in length. This piece also appears to be a part of fillet. There is no ornamentation on these fillets, [Plate II fig. (J)]

At Lohri a fan-like ornament has been found.[9] It has been described as a whistle, but this terracotta piece appears to be the fore-runner of shell pieces of similar form found at Mohenjodaro and so often seen on the heads of terracotta figurines of the Indus Valley civilization [Plate II fig. (m)]

From Nundara[10] which represents the middle phase of Amri-Nal culture[11] no head ornament is reported by Sir Aurel Stein.

At Nal which represents a very late phase of this culture Hargreaves[12] was able to discover some twenty pieces of Silver foils along with other jewellery. One of these fragments has small bevelled floutings *en repoussee* [Plate III fig. (1)]. The decoration of this piece

1. Amri was first visited by Furnes. Furnes ' *Travels in Bokhara* Vol. III p. 58–59.
2. N. G. Majumdar—Explorations in Sind *Memoirs of the Arch. Surv. of India No 48*. pages 24–48.
3. *Ibid*, p. 79–86.
4. *Ibid*, p 91–95.
5. *Ibid*, p. 65–70, 73–76.
6. *Ibid*, p. 61, 63–64.
7. *Ibid*, p 103 (List) pl. XLI, 23.
8. *Ibid*, p. 75 (not illustrated).
9. N. G. Majumdar—*Op. cit* p. 75 (list) pl. XXXIV–II
10. Sir Aurel Stein—An archaeological tour in Gadrosia *Arch. Surv. of India, Memoirs* (43) p. 138–141
11. Piggott—*Op. cit*. p. 76.
12. Hargreaves, Excavations in Baluchistan—*Arch. Surv. of India Memoirs No. 35* p 40.

resembles that of the Sumerian pieces.[1] All these pieces are parts of fillets. Unfortunately some eight of them were found badly oxidised due to their contact with earth and were too brittle to handle. On the clay figurine from Nal no head ornament is visible [Plate III fig. (o)]

Two bone ornaments[2] were also found at Nal which seem to be parts of one piece. They fit together making a total length of 95 mm. There are three fine grooves running parallel to each other on each side. When complete, the length of the piece would have been in the neighbourhood of 8 cm, as the broad end measures 14 mm. It tapers down to a point. Though it is somewhat curved it appears to have been used as a hairpin. At Nal also two phases of culture are noticeable, one earlier and the other later. The earlier phase is represented by the bone hairpin and later by silver fillets.

Zhob Culture—The dark purple-red ware pottery, characteristic of Zhob valley culture perhaps preceded those of Harappa culture, as the excavations of the western defences of Harappa[3] and the recent excavations at Kile-Gul Mohammed and Deh Morasi[4] show. The simple ornaments on the clay figurines also lead us to the same conclusion. Sir Aurel Stein's excavations at Sur Jungal, Kundani, Dabarkot, Periano Ghundai and Moghul Ghundai[5] have brought to light several pieces of ornaments, some of which are quite interesting.

At Dabarkot a folded piece of gold foil[6] was found. It is evidently the part of a fillet. It does not bear any ornamentation but has holes at ends for attachment. A neatly worked gold hairpin was also found at this site[7], but it does not seem to belong to this early period.

The clay figurines found here are of great interest. Most of them have flat bases and are legless, resembling the figurines from Damb Sadat, but in their general ornamentation and execution they differ considerably from them. They wear a simple hood extending almost

1. *I. L. N* March 7, 1926 p. 74.

2. Hargreaves—*Op. cit.* 35 p. 4?.

3. Wheeler-Harappa —*Ancient India* No. 3, 1947 p. 91

4. Fairservis-*Op. cit.*, p. 23.

5. Piggott, however says that these sites equate with Rana Gundai III phaes—*Op. cit.*, p. 124.

6. Sir Aurel Stein—An Archaeological Tour in Waziristan and North Baluchistan *Memoirs No. 37* p. 61.

7. *Ibid.*, p. 60, D. n. D. 26.

up to the forehead [Pl.IV]. This hood is described by Piggott as representing curls of hair or a shawl,[1] but it is neither of the two. We find a biconical bead dropping towards the forehead attached to the hood[2] on fig. 'b' [pl. IV] which suggests that the hood is an ornament. On figure 'a' the tiara is plain like that of figurine 'c'. The front part of figure 'd' seems to be bereft of hair. On figurines 'b' and 'e' we find long beads attached to the tiara which come down to the forehead. It appears that head ornament in its earliest form is seen on the heads of figurines 'a', 'c' and 'd' and in its later form on the heads of figurines 'b' and 'e'. These figurines[3] have been found from different sites but they appear to belong to two different periods of culture, one earlier and the other later. A stone head found at Dabarkot[4] has a curved depression in the form of V on the forehead, perhaps carved to take a fillet-like ornament, such as have been found at Mohenjodaro [pl. XXV fig. (e)]. This head appears to be of a later culture as it has no affinity with the other figurines of these sites[5]. This piece thus represents the third period of this culture almost contemporaneous with the Mohenjodaro culture.

Kulli Mehi Culture—Kulli culture is said to be contemporaneous with the late Harappa culture, but the primitive style of some of these figurines suggests that they belong to an earlier phase. Kulli, Mehi and Sutkagen Dor mounds have yielded a number of ornaments, in spite of the fact that these sites have not been properly excavated because Sir Aurel Stein's explorations were in the nature of tours. From Kulli section IX a piece of gold foil an inch long has been discovered[6] [pl. VI fig. (J).] It has ornamentation near the edge. Its tapering form and the decoration on it suggest that it is the part of a fillet.

From Mehi two decorated copper hairpins have been recovered [pl. VII-figs.(l), and(m)], Figure 'l' shows a copper pin studded with

1. Piggott—*Op cit*, p. 126.

2. Sir Aurel Stein—An Archaeological Tour in Waziristan etc. *Memoirs 37* p. 262 pl. IX

3. Sir Aurel Stein—pl. IX P. W. 9 p. 262 pl. XII K 14; pl. XVI D n D 9 S. J. 68.

4. *Ibid*—pl. XVI D n VI 3 p. 61.

5. It is of interest to note that the human remains from later levels of Nal correspond with those of Mohenjodaro.

6. Sir Aurel Stein—An Archaeological Tour in Gedrosia *Arch. Surv. of India Memoirs* 43 p. 126 pl. XII K II 8 a.

a lapis lazuli at the top.[1] The other pin[2] bears a linear decoration only. It is interesting to find that Mehi people in those early days knew how to decorate their metal jewellery by studding them with precious stones.

From Kulli and Mehi sites several terracotta figurines have been found[3]. These figurines have elaborate ornamentation on their person. Sir Aurel Stein suggests that they are mother goddesses, but all of them do not appear to be female figurines. At least one of the figurines appears to represent a male. Here the fillet does not go round the head; it drops on the shoulders [pl. VI fig. (c)]

All the figurines appear to have fillets on their heads [pl. VI]. The hair is usually dressed up to a high pitch and is allowed to drop on the back. In some cases it is divided into two braids. The plaits of hair are held back by the fillet [pl. VI fig. (b)]. Unlike some of the fillets of Mohenjodaro these fillets appear quite simple. Except the fillet of figure 'c' they have practically no design on them and therefore ought to belong to an earlier period. Similar fillets are seen on the clay figurines of Babylonia illustrated by Frankfort in the Illustrated *London News*[4] belonging to Circa 2000 B. C.

On the head of figurines 'a', 'b', 'd', & 'e' [plate VI] we find the same form of fillet, but on the head of figure 'c' fillet does not go round the head. It drops on the shoulders and has simple linear ornamentation on it. On figure 'i' several fillets are indicated, while on the head of figurine 'k', besides the fillet there appear two round ornaments on the hair. The head ornament of figure 'h' is quite elaborate. The fillet has disappeared and in its place ornament in the form of leaves appears on the head.[5] The lines below this ornament probably suggest curls of hair. We can thus presume that figurines 'i' & 'k' belong to a later phase of this culture than figurines 'a', 'b', & 'd' and figure 'h' is of a still later date. Thus we find here also three phases of this culture.

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1. Aurel Stein—An Archaeological Tour in Gedrosia *Arch. Surv. of India Memoirs* 43 p. 158 pl. XXXII–III, 6, 9.
2. *Ibid* pl. XXXII–III, 6, 7.
3. Aurel Stein—*Memoirs* 43, Kulli p 120 pl. XII–KV–4a, K VII–3; Mehi pl. XXXI, III 6, 17; III 4, 10; III 2, 2.
4. Frankfort—Religions in Babylonia *I L N.* Sept. 5, 1936, page 388 fig. 1 right last.
5. The modern ornament of this form is known as *patta* from its leafy form.

The fillet is still worn, bound round the head and is known as *Bandi*, though it has become more elaborate than what it originally used to be[1].

According to Piggott the Amri settlements were succeeded by a people who owed allegiance to an Empire,[2] but it appears from the simple ornaments on the Zhob and Kulli figurines that there was an intervening period between the Amri culture and the Harappa culture which replaced the diversity of cultures by an uniformity over an area comparatively vast, perhaps extending from Makran to Gujerat[3] and northwards up to Himalayas in the shape of an irregular triangle. During a period of almost a thousand years that this culture seems to have persisted, it has recorded the different foreign influences that penetrated the society as well as the natural indigenous developments, both of which got imprinted on the ornaments.

Harappa Culture-From Kulli to Harappa culture is not a difficult glide as Kulli culture in its later phase was almost contemporaneous with Harappa culture. From the first hoard[4] discovered in the 'Colie quarters' Vats illustrates a piece of gold foil[5] [plate VIII fig. (0)]. It was found in trench B of mound AB and measures 5.2". The design on it is so obliterated that it is difficult to decipher what it proposed to represent. It is evidently a part of fillet.

Several cone-like ornaments have also been found at Harappa, which lead us to suppose that the ladies often adorned their heads with these. We see them on the heads of several terracotta figurines illustrated by Vats.[6] They are illustrated here [pl. IX A] and on figs. 'j' and 'k' [pl. IX]. A cone of gold is illustrated on fig. 'd' [pl. VIII] It has a loop of silver inside near the apex evidently to fasten the ornament on the head by letting a lock of hair through it. It was found in the first hoard mentioned above. It is plain and has no ornamentation on it. Similar gold caps with little loops soldered on inside have been found at Troy.[7] Another cone of silver[8] which

1. Designs in the Traditional Jewellery-The Punjab-*Marg* VI-I 1952 p. 61.
2. Piggott-- *Op cit.* p. 133.
3. *Indian Archaeology* 1955-56 70, Wheeler – *Op cit* p. 2.
4. Vats—*Excavations at Harappa*, p. 432.
5. Vats—*Op. Cit.* pl. CXXXVII—22.
6. Vats—*Op. Cit.* pl. LXXVI—23, 26, 30; pl. LXXVII—31, 47, 53, 60.
7. Childe-- *A New Light on the most Ancient East* p. 182.
8. Vast—*Op. Cit.* p. 443 pl. CXXV - 51,

was found here is inlaid with a circular piece of shell [pl. IX fig. (k)]. Jewellery inlaid with pieces of shell has been found in great abundance in Ur and it is possible that this piece may have come from the West. The presence of such a jewellery at Harappa is a pointer to its Western contacts. The inside hook of the piece is missing. Still another cone of faience found by Vats is illustrated on fig. 'j' [pl. IX]. It is a simple cone of faience having no ornamentation on it except for the white glaze which covers it. It has a hook inside. Two ivory cones with flat projecting rims were also found. They have two holes over the rims. The height of one is 1. 63" 'and that of the other 1. 75". Their diameter is 2. 45" and they look like Parsi caps in shape [pl. IX-A fig. (a)]. The cones of pottery relieved by three concentered grooves with flat projecting rims are among other finds. Each has a hole at the apex. The cone-like cap on fig 'b' [pl. IX-A] has a diameter of 3. 65" and that on fig. 'c' [pl. IX-A] a diameter of 2. 45". One of the most beautiful pieces is a cone of faience. It is hemispherical in shape with rolled and cabled rim. It is decorated with three wavy bands of cabled pattern. Unfortunately more than half of it is missing. On one side there are traces of a hole. The hole at the apex measures ·4" in diameter. The height of the piece is 1.1" and diameter 2. 9" [pl. IX-A fig. (d)]. Often these cones were worn with other ornaments. Vats describes some of them which are not high as temple ornaments.[1] They have been found in steatite, faïence, shell and pottery. Most of them are in the shape of plano-convex discs with or without projecting knobs, but some are also in the form of flat cones usually provided with arch-shaped hook or loop for attachment. Such a conical boss of ·2" height and .65" diameter in faience was found by Vats[2] at Harappa. It has beautiful blue glaze on it. Another is a plano-convex disc of burnt steatite with arc-shaped hole on the plane side.[3] [Pl. IX A, fig. (h)]. A beautiful piece of faience found at Harappa has cabled border and is decorated with frilled and incised circles [pl. IX-A fig. (e)] There is a knob at its back for attachment. Curiously it retains the impression of woven cloth on which it was moulded.[4] Another piece is a plano-convex disc of burnt steatite. Its diameter is 1. 5" [pl. IX-A (f)]. It has cabled border. A

1. Vats—*Op. Cit.* p. 443.

2. It is not illustrated by Vats No. 3311.

3. Vats—*Op. Cit.* pl. CXXXVIII-31.

4. Vats—*Op. Cit.* pl. CXXXVIII-33.

plano-convex shell-disc with raised middle portion taking arc-shaped holes is illustrated on fig. 'g' [pl. IX-A]. In the great granary area[1] another disc of shell was found holed through the apex. Another disc is of blue faience: it has flat projecting rim [pl. IX-A fig. (i)]. Its diameter is 2. 2". Unfortunately the only example of ivory found is not illustrated (No. 526) by Vats. He say that its diameter is 2. 18". Such temple ornaments are seen on figures 'd', 'c', 'f', 'k' [plate. XIV]. Some of the discs like 'a', 'b', 'c', 'd', 'e', and 'f' may also have been used on the head as we see similar decoration on figures 'd', 'e', 'f' [plate XV.] Vats has, in the hoard from the "workmen's quarters", found an ornament in the shape of figure 8. It consists of a silver plate on which are soldered three strips of gold in the form of figure 8 which is again inlaid with tiny cylindrical beads of burnt steatite capped with gold [pl. VIII fig (m)] Each of the two circles has a hole for attachment. Vats suggests[2] that this ornament was perhaps used for decorating the bun at the back of the head, like the one we see on the head of the bronze figurine found at Mohenjodaro illustrated by Marshall on his Pl. XCIV-6, but we cannot be quite sure about this suggestion as we do not come across any terracotta figurine wearing this ornament, except perhaps figure 24 of Pl LXXVI of Harappa illustrated by Vats. On figure 'f' [pl. VIII] we have a fan-like ornament of faience It was found by Vats at Harappa[3] from the great granary area stratum IV. Though Mackay says that "the exact material which composed the fan-shaped head-dress so often worn the by famale figurines and sometimes by the male is not known[4]" yet from this ornament found at Harappa and a similar one found at Mohenjodaro[5] by Mackay we can presume that the fan ornaments here used to be of faience. This piece is heavily ornamented with linear decoration. Another piece of a similar ornament of ivory is illustrated here [pl. VIII fig. (h)] It is in the form of a ribbed dome. It is just possible that this piece may also be a part of a bigger fan ornament. It has holes on the sides for fastening it on the head by threading it to the locks of hair.

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1. Ibid—p. 441 No. 36
2. Ibid—p 64.
3 Vats *Op Cit.* pl. CXXXIX-2 p. 441.
4. Mackay & Mackay—*Early Indus Civilization* 1948 p 78.
5. Mackay—*Further Excavations at Mohenjodaro* pl. CXCVII—1.

Such cones and fan-like ornaments are still worn in *Mārvāṭa* and are known as *Chauka.* Generally they are of gold and are of several forms. The most common ones are in the shape of Pyramids and round discs. Often they are studded with precious or semi-precious stones. The gold ones are always covered with designs of lotus and other flowers. This ornament is a necessary equipment of a married woman of *Rājasthāna.*

Several hairpins and hairpin-heads have also been found at Harappa. One of them is of bronze. [plate XIII-figs. (a) and (b)] It shows a dog biting the ear of a deer. Its length is 4·4" and the diameter of the bronze rod is about. 2" It tapers down. On figure 'a' the pin is shown before it was cleaned and on figure 'b', after it was cleaned. It looks as if the whole pin was cast in a mould by *cire perdue* process. It is an example of high craftsmanship of the coppersmiths of Harappa[1] and should belong to the later phases of this culture, contemporaneous with Mohenjodaro. Another plain bronze pin is illustrated here on fig. 'c' [plate XIII]. Unfortunately it has no head. It was perhaps broken. The ornamentation, if any, near the neck is not now visible, perhaps due to faulty cleaning. These pins are described by Vats as antimony rod stoppers of ungent pots, but they are in reality hairpins, for animal-headed pins have been found on several protohistoric sites of Iran and other countries [pl. XLV.]

A number of clay figurines found by Vats[2] and Wheeler[3] at Harappa have elaborate ornaments on their heads. Some of typical head ornaments are illustrated here [pl. XIV and on pl. XV]. Most of them were found in post-cremation urns and may have been connected with the funerary rites.[4] Being heavily bejewelled, they give us an inkling into the various fashions of those early days.

From the simple fillets of Kulli figurines and low hoods of those of Zhob valley we now come across fully developed crowns as we see on fig. 'k' [plate XIV] from Harappa. On figure 'a' [plate XIV] we first find the fan-like ornament held by a fillet.[5] The

1. Vats—*Op Cit* pl. CXXV—34, 36 p. 181.

2. Vats—*Op. Cit.*—pl. CXXV—37.

3. Wheeler—Harappa—*Ancient India* No. 3 Jan. 1947 pl. LVI 1-9.

4. Vats—*Op Cit.* p. 292.

5. Similar fan-like ornaament is seen on a clay figurine of predynastic period—*British Museum* No. 108759.

fillet, however, develops into an elaborate ornament as we see on figure 'b'. It becomes wider and is ornamented with vertical lines enclosed within two horizontal lines at the top and two at the bottom. The fan here is in the shape of a half-moon. The head ornament of figurine 'c' has however two leaf-like ornaments coming over the forehead in addition to the fillet and the fan. On the right side of the forehead of figurine 'd' we observe the fan ornament decorated with two rosettes in the form of daisy flowers. Two conical type of temple ornaments on the two sides of the fan are seen. The head ornament of figurine 'e' is still more elaborate. Here the conical side-ornaments are split each into two pieces and there is a bead attached to the fan which drops over the forehead. On the head of figurine 'f' the fan is of a different shape. On the left side of the figurine's head it ends into a point and the arc of the fan is also undulated. The rosettes here are stylised and are in the centre. The head ornament of figurine 'g' is quite different. In consists of three rosettes attached to a fillet and arranged in the form of a triangle. On the head of figurine 'h' the ornament appears to be of a totally new variety, with ends curved on two sides and the middle portion depressed inversely. The same type of ornament is on the head of figurine 'i' in its simpler form with the two ends projecting on two sides. On figurine 'k' the head ornament consists of a fan decorated on both sides with rosettes. The upper portion of the fan is missing. Here the side-ornaments are also decorated On the head of figure 'j' we find a cone-like crown decorated with a disc on one side near the top of the cone.

The figurines on plate XV have slightly different types of ornaments on their heads.[1] On the heads of figurines 'g' and 'h' we see two simple fan-like ornaments not unlike the head ornament on a Syrian God in the Louvre Museum.[2] On the head of figurine 'h' the fan is oblong, while this ornament is round and hollow in the centre on figurine 'g'. Later this shape of the ornament was perhaps rounded at corners, as we see on figures 'd' and 'f' and also on figurine 'h' [pl XIV] On figure 'd' the fan, besides being curved like the horns of a ram is ornamented with linear triangles, while on figure 'f' the fan has horizontal curved lines and is decorated with a disc on the left and a leaf-like projection on the right. On figure 'b'

1. Wheeler-Harappa—*Ancient India* pl. LVI, 1, 2, 5; LVIII, 22, 23, 27.

2. Louvre—*Divinite' masculine bronze de Syrie du nord*—AO 20162.

we see a fan on the head with two fillets and three leaf-like ornaments dropping on the forehead. On the head of figurine 'c' the fan is there but in place of the fillets and the leaves of figure 'b' we have three rosettes of different shapes, one representing a flower, another a square and, the third the handle of a door. When, however, we come to figure 'a' we clearly see how the original fan ornament was later broken into three pieces, the two sides, like the two wings of a bird and the central piece, like its tail. On figure 'e' we see the two side pieces bound by a fillet. This form of head ornament is commonly seen on the heads of Mohenjodaro figurines and therefore may have been of a later development. These fan-like ornaments perhaps denoted authority like the tall head ornaments of Egypt described by Petrie.[1] The addition of other pieces to this ornament was made to mark the higher authority of the user and may have come at a later date.

Some of the figurines illustrated on plate XVI appear to represent men,[2] for example figures 'a', 'b' & 'c'. Figure 'a' has on the head a cone on one side bound by a fillet which goes round the head. Perhaps the cone of the other side is broken. On the head of the person on figure 'b' there are two fillets which go to the back of the head and end in the form of a question mark '?'. Figure 'c' has a stepped cone on the head. It looks more like a cap than a cone, but its stepped form suggests its metallic composition. On the head of figurine 'd'[3] there is a cone and a fan-like ornament. The fan is curved and on this the cone rests. The fillet goes round the head, perhaps to keep these ornaments in their places. On figurine 'e' we come across an arrangement which appears like a broken fan-ornament but it extends in one piece covering the neck and a part of the chest. It is quite peculiar in shape. On the head of figurine 'f' we find two cones near the temple. These perhaps represent the cones which have been found at Harappa and illustrated as temple ornaments.[4] They were perhaps bound together with a fillet going round the head. The fillet is, however, not observable here. On figure 'g' a cone-like crown is visible on the head. It is,

1. Petrie, W. M. F.—*Amulets of Egypt*—pl. IV symbols of Ability and Authority.

2. Vats—*Op. Cit.* pl. LXXVI—21, 12, 19.

3. *Ibid.*—pl. LXXVI—23.

4. Vats—*Op. Cit.* pl. CXXXVIII—30, 39 etc.

however, not like the ornament seen on figure 'c'. This cone-like crown has two front depressions and a side depression. There is a fillet also which goes round perhaps to keep the ornament on the head. A somewhat similar head ornament is seen on the figurine from Mohenjodaro illustrated by Mackay.[1] On the head of figurine 'h' we come across a type of ornament quite distinct from the others. It extends over the back of the head practically covering the ears and the forehead. The extension over the back is in the form of a horse's tail. It cannot be said with certainty if this piece carried any ornamentation on it. On the head of figure 'j' there is another cap-like ornament with a round disc in the centre which projects forward. The cap is only on a part of the head and may have been bound over by a fillet. On figurine 'k' there is a simple fan-like ornament without any ornamentation. Perhaps this may have been the original form of the head ornament which later became more and more elaborate. The fan-like ornament is also seen on the heads of human figures illustrated by Comte F. de Chasseloup Loubat in Art Rupestra au Hoggar.[2] Similar fan ornament is seen on Pre-Hittite or Hittite clay figurines in the British Museum.[3]

Some of the sealings and amulets from Harappa also have human figures wearing head ornaments.[4] On the head of figure 'u' [pl. XIII] we see a peculiar cone-like ornament.[5] The figure is of a man with a bow in his hand. On figurine 'q' we see a God under an arch as Vats describes this seal. On the head we come across a crown with three prongs Perhaps this was the original form of the three-pointed crown of *Kṛṣṇa* we come across in the early Kangra paintings[6] and early Rajput paintings[7] representing *Kṛṣṇa Līlā*. On figure 'r' we see two cones slantingly worn on two sides of the

1. Mackay—*Further Excavations*. pl. LXXIV—15.
2. Comte f. de chasseloup Loubat – Saharan Influence on Egyptian Art *I L N*. Jan. 14, 1939. p. 63, these paintings strongly remind us of *Kṛṣṇa Līlā*
3. *British Museum*. No. 108577.
4. Vats—*Op. Cit* pl. XC III, 303, 304, 305, 307, 316, 317, 318, 319.
5. Like the crown we come across on Terracotta figurine of Patna Museum of early Mauryan period No, B x R 57/6588.
6. Ganguly, O. C —*The problem of Molaram-Marg* Vol. IV–4 p. 38. figs. C & D.
7. Khandalawala – *Leaves from Rajasthan-Marga*—Vol, IV–c 1950 p. 18,

temple, not very unlike the head ornament of figurine 'f' [pl. XVI]. On figure 's' we find a human figure wearing a head ornament with two horns almost like the clay masks found at Mohenjodaro by Mackay.[1] On figure 'j' another sealing is seen. Here, the head ornament consists of three prongs but the two side prongs are curved, while the centre piece is straight. Thus we find four distinct phases of this culture, from the simple fan to the fan with panniers and decorated fillets.

From Harappa to Mohenjodaro is an easy stride, because these cultures were for sometime contemporaneous, and recent excavations have shown that at Mohenjodaro also several cultural levels[2] are distinguishable.

Mohenjodaro Culture—Among the jewellery found by Mr. Dikshit, described as the first hoard[3], there was no fillet, but in the third hoard discovered in a silver casket[4] at a depth of 6' below the surface of room 7 of house VIII block 2 section H. R. six fillets were found [pl. XXV figs (a), (b), (c), (d), (e), and (f)]. All of them are of thin sheet of gold The shape of fillets on figures 'c' and 'd' is not quite certain as they were found badly twisted. They have, however, two holes at their two ends. The shape of fillet on figure 'a' can, however, be seen. It is in the form of a flat arc of a circle. Only one hole on one side of this fillet is visible. On figre 'b' we have a piece which measures 6.2" in length and .75" in width. It has a number of small holes like the silver fillet found at Kish,[5] perhaps to carry small bead pendants like our present day *Bandi.* It still retains its spring. On figures 'e', 'f', and 'g' there are three fillets in the form of wide V, unlike the Harappa fillets[6] which are slightly curved forming a wide arc of a circle. These have holes near the two ends and also in the centre. The middle hole may have been used for fixing some pendant for decorating the forehead. On the head of figurine '1' [pl. XCIIV] of Marshall we can see how this variety of fillet was worn. Another piece of fillet[7] of gold measur-

1. Nackay—*Further Excavations at Mohenjodaro*—pl. XXIV—22.
2. Information received from D. Dani of the Dacca University East Pakistan. The report is still unpublished.
3. Marshall—*Mohenjodaro & the Indus Civilization* Vol. II p. 519.
4. *Ibid*—p. 527. pl. CLI a.
5. Mackay—*A Sumerian Palace*—Vol. I, pl. IV–24.
6. Vats—*Op. Cit.* pl. CXXXVII–22.
7. Marshall—*Op. Cit.* pl. CXVIII–14.

ing 16. 5" in length and .05" in thickness was found at Mohenjodaro. It tapers down toward the ends which are .4" wide. It is half an inch broad in the centre, like those of copper found at Kish.[1] The ends are carefully rounded and bear a design embossed by a blunt point which resembles in outline the cult object seen before the unicorn seals of Mohenjodaro[2] and also an idealised inverted altar of the type found at Harappa and Mohenjodaro[3] [pl. XXVII fig (t)]. This design is almost identical with the ornamentation found on some of the jewellery from Mochlos of early Minon II period.[4] Its bright gold still retains its original spring. These fillets seem to have been box-plated. The holes at the ends seem to have been pulled out of shape by tension, suggesting that they used to be tightly bound round the head.

Among the jewellery found by Mackay there is a piece of silver fillet[5] It was, however, in too brittle a condition to be unrolled [pl. XXVI fig (a)]. Its exact length is, therefore, not known. It is O.9" wide and .22' thick. This fillet has the decoration of raised punch dots towards its base. This method of ornamentation is seen on the fillets of early dynastic period of Sumer. Similar decoration is seen on fillets from Hissar.[6] Petrie and Quibell also illustrate two bands of copper ornamented with Zig-Zag lines of punch dots of the proto-dynastic period.[7]

One of the pieces of silver found in the first hoard is described by Marshall as having chisel marks remarkably like cuneiform characters. It is evidently a part of a fillt. Its present weight is 23. 389 grams. It measures 22.68 mm. X 5.58 mm. This fillet may have looked originally like the ornamented fillet which we come across in Sumer.[8] Judging from this piece it appears that the original bar was quite rough and was run in a clay mould.[9]

1. Mackay—*Op Cit* Vol. II pl. LIX-K-2652.
2. Wheeler—*The Indus Civilization* pl. XXIII-5.
3. Wheeler—Harappa-*Ancient India* No. 3, 1947 p. 100 fig 11 e.
4. Evans—*Palace af Minos* Vol. I p. 96-fig. 67.
5. Mackay—*Further Excavations at Mohenjodro* p. 526 pl. CXXXV-4.
6. Schmidt—*Hissar* pl. LIV-H 4112
7. *Naggard & Ballas* p. 48 pl. XIV fig. 100, 101.
8. Woolley—*The Royal Cemetery* pl. 139.
9. Marshall—*Mohenjodaro & the Indus Civilization* Vol. II. p. 519,

Several cones have also been found at Mohenjodaro. One of them found in the first hoard is of gold [pl. XX fig. (c)]. This cone, however, is a little different in form from the cap found at Harappa in as much as it has a small pyramid at the top.[1] It is 1. 35" high and is of burnished gold; no soldering mark is visible. Inside there is a loop of gold meant to fasten it to the head. We notice a similar loop for attachment in hollow hemispherical cup of the early Bronze age in Hungary.[2] The form of the cone suggests that it is of a later period than that of Harappa, which is simpler in design. Here the addition of another cone at the top makes it more elaborate.

Another silver cone found at Mohenjodaro is almost like its gold counter-part. It also has a loop inside to let the lock of hair in for attachment. Unfortunately it was found badly corroded.[3] It has, however, no pyramid at the top and is plain from outside [pl. XXVI fig (b)]. Another cone of copper found by Mackay[4] is 1.5" in height and has a diameter of 2.0". Instead of a loop it has a hole which measures ·05' in diameter. It is rather flat looking cone [pl. XXVI fig. (e)]. A part of a shell cone found by Mackay[5] is illustrated here [pl. XXVI fig. (f)]. It has also a hole for attachment instead of the usual loop. Except for linear decoration at the edges it is plain. Similar cones were found by Dikshit at Mohenjodaro having more or less identical design.[6]

At Chanhudaro from Mohenjodaro level Mackay found two fragments of a shell cone[7] which fit each other [pl. XXXVIII fig. (h)]. When complete it would have been 1.2' in height and 2.78" in diameter. Perhaps these pieces were separately made and joined together with an adhesive, the composition of which cannot be ascertained. They have base decorations which are filled in with red paint.

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1. Though this little addition is not seen in the illustration of Marshall it is there. This piece is in the National Museum, New Delhi–Marshall–*Op. Cit.* pl. CXLIII–2.
2. Gorden Childe—*The Aryans* p. 124.
3. Mackay—*Further Exavations at Mohenjodaro* p. 529 pl. CXXXV–7.
4. *Ibid*—pl. CXXIV–30, CV–22.
5. *Ibid*—pl. CV–42.
6 Marshall—*Op. Cit.* pl. CLVI–13, 16, 17.
7. Mackay—*Chanhudaro Excavations* p. 198 pl. XC–5.

These shell cones bear little or no decoration, perhaps because the shining white shell was considered beautiful in itsself. Contrasted against the yellow background of gold ornaments, these pieces would have looked extremely beautiful. A cone of faience[1] was also found at Chanhudaro coated with thick light green glaze 2·3" in height with a diameter of 1·3". It is from the Mohenjodaro level. One of the cones found by Mackay[2] at Mohenjodaro has no decoration on it, perhaps it may have been covered with paint, like the one found by N. G. Majumdar[3] at Lakhiyo. It is ·72" high and has a diameter of 1·22". Two holes near the base for attachment measure ·07" each. Pottery cones were also found at Chanhudaro[4] from Mohenjodaro level. They are of similar form.

From Lakhiyo Majumdar found a terracotta cone[5] which is illustrated here [pl. XXXVI fig. (p)] It still has traces of paint on it and has holes for attachment. It is 1·8" in height.

At Jhukar also several terracotta cones were found from the Mohenjodaro level. They may have been painted once, but they look plain now. In shape they are similar to the one found at Lakhiyo. Two of them[6] illustrated by N. G. Majumdar are 2·6" and 2·7" in height [pl. XXXIX fig (d)] One has a linear design at the base, while the other has a neck-like a pot.

At Lohumjodaro[7] also a terracotta cone was found. It has, however, a wider base than the Jhukar one. It is plain and does not bear any decoration. Its height is 1·6" and it seems to have been broken at the end [pl. XXXIX fig. (k)]. Perhaps the poor who could not afford metal-cones used to decorate themselves with painted pottery ones.

Several pieces have been found at Mohenjodaro which resemble the fan-like ornaments seen on the heads of the clay figurines. They are of vitreous paste or faience [pl. XXVI figs. (g), (h), (k) & (j)]. On figure 'h'[8] the piece has decoration, which consists of vertical

1. *Ibid*—page 178.

2. Mackay—*Further Excavations at Mohenjodaro* pl. CXXXVI–89.

3. Majumdar, N. G.—*Op Cit* p. 77.

4. Mackay—*Chanhudaro Excations* pl. XXIX –67–68.

5. Majumdar, N. G. *Op Cit.* pl. XXXIV–3.

6 *Ibid* p. 12 pl. XVII–11–10.

7. *Ibid* p. 55 pl XXII–45.

8. Mackay—*Further Excavations at Mohenjodaro* pl. CXL–40 p. 545.

lines enclosed within two lines at the top and two at the bottom. Below this ornamentation there are curved lines like those of the branches of a tree. Its height is 1·52" and thickness ·03". A slightly different piece[1] is seen on figure 'g'. It very much looks like a ladies fan with vertical lines set in two compartments. On figure 'i', however, the ornament is of crescent shape.[2] In the centre there are two circles within which is enclosed a four cornered square composed of the arcs of a circle. There is also a dot enclosed within a circle in the centre of this square. On the sides there are simple lines. On figure 'j' we have a piece[3] which is semi-circular and looks like the half portion of a cogwheel. Its base is 3·3" and is of apple green colour. It may also have been used on the head like the fan ornament.

Though rare, several hairpins and hairpin-heads have been found at Mohenjodaro as well as from other related sites. They are mostly from the lower levels[4] Hairpins in all probability were worn by women and men used to decorate their Coiffure, as a shaft and a plain round head of a pin are seen carved on the sculptured head found at Mohenjodaro.[5] Of the hairpin-heads found at Mohenjodaro there is one which shows a dog-like animal, though Marshall describes it as an ibex.[6] It is of ivory and is 1·3" in height [pl. XXVII fig. (l)]. On figure 'm' of this plate the pin-head is circluar in form and within the circle there is an eliptical square of arcs. It is of steatite. The hairpin-head on figure 'n' [pl. XXVII] is in the form of a lotus fruit. On the head, the depressions represent the small holes through which fruits come out. It is of faience. On figure 'o' we have monkeys clasping one another. The form as well as the detailing are quite interesting. It is just possible that this may be the symbolic representation of the old story of three monkeys 'Hear no evil, see no evil, speak no evil.' It is of steatite. Another similar pin-head was found by Mackay from Mohenjodaro. On figure 'p' we see a pin in the form of a lotus bud. It is really interesting to find lotus

1. Mackay—*Further Excavations at Mohenjodaro* pl. CVI—14.
2. *Ibid*—pl. CXLII 39a.
3. *Ibid*—pl. CIX—22.
4. *Ibid.* Vol. I p. 538.
5. Marshall—*Op. Cit.* pl. XCIX—6.
6. *Ibid.*—Vol. II p. 531; pl. CLVIII—¹

motives so realistically rendered at Mohenjodaro and Harappa.[1] On figure 'q' we have a hairpin-head of shell in the shape of a pot. The basehole designed to take the pin measures ·15″ in diameter. On figure 'z' we have a curiously designed pin-head in the form of a mace-head. On figure 'u' [plate XXVII] we have an ivory pin almost complete with the profile of a dog's head at the top and grooves on the neck of the animal, suggesting that it was a pet animal and used to be decorated with ornaments on its neck. It is 2·6″ long and ·21″ in diameter. On figure 'v' we have another bone pin with a mace-like head 2·2″ long and ·28″ in diameter and on figure 'w' there is an ivory pin with the head in the form of an altar decorated with a cross. Below the cross there is linear ornamentation. Two bronze hairpins from Mohenjodaro are illustrated here [pl. XXVII figs. (x) and (y)]. On the head of pin 'x' which is 4·4″ long and ·12″ in diameter we see two black bucks or antelopes back to back. Antelope-headed pins have been found at Alaca Huyuk from levels of third millenium B C.[2] This pin clearly shows that they were used to keep the hair in place. On figure 'y' the pin is of copper wire 3·45″ long. The head was formed by flattening and coiling it in circles. The head looks like the bun of woman's hair.[3] Similar hair-pins have been found in Central Europe,[4] Caucasus,[5] and Hissar.[6] Bird-headed hairpins of ivory have also been found at Mohenjodaro[7] Sah Tepe[8] and also in Turang Tepe.[9]

At Jhukar,[10] from Mohenjodaro level an ivory pin of chocolate colour was found. It is 3·4″ in height but is broken [pl. XXXIX fig. (a)]. At Lohumjodaro from the lower levels a pin of bone was found.[11]

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1. Vats.—*Op Cit* pl CXXX X-7
2. *I. L. N* April, 9, 1938 p. 633. figs. 3, 4.
3. Marshall—*Op. Cit.* pl XC V 7.
4. Frankfort—*Archaeology and the Sumerian Problem*—Oriental Inst. Chicago fig. 7.
5. Hancar, F. *Die Nocdelformen des prahistorischen Kaukasus gebietes Eurasia Septentrionalis Antiqua* VII p. 113–182–Able–17—*Lochnadeln mit figural gezierlum Kopt aus Koban p. 143 figs. o, b, c, d, e*
6. Schmidt—*Hissar* p. 205.
7. Marshall—*Op. Cit* p. 540 pl. CX. 54–58.
8. Arne—*Sah Tepe* p. 301–302.
9. Wulsin—*Turang Tepe* p. 12.
10. Majumdar—*Op. Cit.* p. 13 pl. XIX–9.
11. *Ibid*—p. 56.

Its present length is 2·55". Its head has the design of a leaf and the decoration represents its ribs. It is damaged at the end and appears to be of a later period, possibly of Jhukar Culture [pl. XXXIX-fig. (i)]. At Karchat a copper pin fragment 3·55" in length was found by Majumdar.[1]

How these ornaments were worn can be found from the bejewelled clay figurines unearthed from Mohenjodaro. Here we observe how from the simple fan-like ornament the elaborate headgear was developed in the course of centuries during which this civilization lasted. These figurines are made of clay mixed with a degraissant of lime and mica which burnt light or darkpink and are covered with a red wash. They possibly represent the men and women of the period. These probably satisfied the public demand for idols for worship.[2]

Here on the head of figurine 'a' [pl. XXIX] we see a simple fan bound by a thin fillet, which is almost imperceptible. Similar fan-like ornaments are seen on figurines from Adalia and Asia Minor.[3] On the head of figurine 'b' there is the fan, but there is a cone also before the fan. The fillet is also wider and more elaborate on the head. On the head of figurine 'c', however, we find the fan broken into three pieces. The fillet still does not bind the side pieces. The fillets on the figurine 'd' are ornamented and they bind the fan. When, however, we come to figurine 'e' we find the side cones bound by the fillets The head ornament in its fully developed form is, however, seen on the head of figurine 'f' with a fan, two panniers and a decorated fillet binding the whole head-gear.

This fan-like ornament seen on the head of figurines 'a', 'b', 'c', 'd', etc. [pl. XXIX,] perhaps represents the spreadout tail of a peacock when it dances in joy at the coming of the monsoon. The feathers of a peacock arranged in the form of a fan are seen on the head of *Kṛṣṇa* in the *Kṛṣṇā Līlā* paintings of Rajputana[4] and it is possible that the fan we see on the heads of these clay figurines may have been the early stylised version of the same motif. It was most probably worn on the middle back portion of the crown as is done

1. Majumdar—*Op. Cit.* p. 131.

2. Mackay—*Further Excavations etc.* p. 258.

3. *Liverpool Ann. Arch. Anthrop* Vol. II pl. XXIV-4.

4. *Bakāsura Badha*—Kr. Sangram Singh's collection of Rajput paintings Nawalgarh, Jaipur (India).

even now by the Rajput women of Bikaner and is known as ***Rākhi*** in its present form.[1]

The fan-like head ornament on figurine 'a' [pl. XXIX], however, bears some decorations on its base. On the head of figurine 'b' [pl. XXIX] we see the fan-like ornament clearly on the middle of the head and a cone before the fan. Then comes the fillet which goes round the head binding the various head ornaments. On figure 'c' we find two pannier-like ornaments in addition to the fan. A distinct development is seen on the head ornament of figure 'd' where the fan ornament is bound to the head with two decorated fillets. On the head of figurine 'e', the fillet binds the temple ornaments also. On the head of figurine 'f' further elaboration appears. The fan ornament is there and so are the temple wings, but several fillets are employed to bind these. They produce a turban-like effect. The fillets converge near the centre of the forehead and are ornamented. The ornamentation on the fillets leads us to presume that it is a crown of metal strips. Figure 'g' shows a simpler ornament, though it is quite decorative. The head decoration consists of a round fan-shaped ornament along with a cone which has a small disc at the top and is bound with a broad fillet. Figurine 'i' has a simple round fan-like ornament with a broad band covering a part of the forehead and, therefore, should be of an earlier date than the rest, except figurine 'a'.

It may be observed here that these fan-like ornaments with panniers are rarer on the clay figurines of the lower strata than the upper[2] ones. Thus we can safely conclude that the fan with pannier ornamentation is of a later date than the lone fan ornament. Unfortunately, however, details are not available as to the exact strata from which these different clay figurines have been found.

On the heads of figurines 'h' and 'j' [plate XXIX] we find two absolutely different kinds of head ornaments. The fans here are conspicuous by their absence. Instead of the fan we find that the bun of the hair is slantingly set to the right of the head of figurine 'h' like the buns of some of the Indian asetics of today. On the forehead is a beautiful round disc ornament attached to the chain-

1. *Design in the Traditional jewellery*—The Punjab, *Marg*—VI–1, 1952 p. 61.
2. Mackay—*Further Excavations at Mohenjodaro*—p. 261. The lower level figurines illustrated on pl. LXXVI have only fans and fillets. fig. 9, 13, 21.

like decorated fillets. On figurine 'j' we see two buns on two sides of the head as is worn even today by some women in Bengal and an incised metal fillet going round the bun to the right of the figurine to which are attached three rosetts. Nothing is distinct on the other side of the head except a bun of hair bound by a fillet. The central portion of the head and forehead have no other decoration.

Mackay suggests that the panniers of the head ornament which is seen on some figurines may have been used as lamps, because some of them have black soot marks[1] The presumption may be correct as clay figurines are still used as lamps during Devali festivals in India and are known as *Dipa Lakṣmī*.[2] Their modern counterparts are made with two cups in their hands which are used as lamps, by putting in clarified butter and wicks in them. Here we find several types of head ornaments on the figurines. On the head of figurine 'a' [pl. XXX] there is a cone which extends to the left like a horn. At the base of this cone there appear fillets. There is nothing on the other side of the head. On the head the broken fan-like ornament is seen, before which there is a disc. On the lower part of the forehead there are two fillets in the form of 'v'. Perhaps they are made of incised strips of metal.[3] There is a cup or basket-like ornament suspended to the fillet which hangs to the left side of the head Perhaps this cup may also have been used as a lamp. On figurine 'b' we have a fan-like ornament on the head but this fan has curved edges and has medallions, representing perhaps the hydra-headed serpent's hood. There is a broad fillet which goes round the head and binds the two wings on the temples.[4] Figurine 'c' shows a head ornament consisting of three fillets and a disc. Three incised fillets come down from the top of the head and go back. Near the centre of the forehead there is a circular disc. A sâfâ-like head ornament is on the head of figurine 'd'. The two fillets which come down are plain but there is an ornamentation on the left side of the broad fillet. On the head of the bronze figurine 'e' we come across a plain fillet. It is just a metallic band to keep the

1. *Ibid* —p. 260–261.
2. Coomaraswamy—Early Indian Iconography *Śrī Lakṣmī*, *Eastern Art* p. 187; A. S. I. A. R 1915–1916, pl V.
3. A reference to the form of these fillets has already been made.
4. A similar head ornament is seen on a figurine found by Mackay—*Op. Cit.* pl. LXXIII–4.

hair intact. The figurine 'k' has a cone protruding from the left side of the head which is bound with a fillet.

Some of the male figures found at Mohenjodaro have no ornaments on their heads, while others have horn-like ornaments on their heads. The stone sculpture of the bearded man found by Marshall, figure 'f' [pl. XXX] has a fillet which goes round the head A round ring-like ornament appears on the forehead attached to this fillet. The fillet is evidently metallic because it drops behind the head quite stifly. A similar head-ornament is seen on the head of the Assyrian attendant[1], except that there are three discs attached to the fillet and these discs have lotus designs on them. On this disc which is on figure 'f' there is a round circle in the centre. Figures 'm' and 'n' represent two of the several terracotta masks found at Mohenjodaro. Each of these masks has two horns on the head. The horns on the mask on figure 'm' are like those of a bull, while those on the mask of figure 'n' are like the horns of a ram. Such masks are still quite common in India and are worn for pageant shows to represent *Rākṣasas*. These horns were commonly worn as ornaments, as is seen on the heads of some deities on seals One such head ornament is illustrated on figure 'm'. Figure 'o' represents another variation of the two horn-head ornament. In this case the curved horns are standing erect. Such an ornament is seen on the head of an Assyrian divine guardian of the doorway of Sennacherib's Palace at Nineveh[2] and also on the head of a Sassanid king[3] On figure 'p' we have two horns with a modified fan ornament in the centre. The two horns have incised decoration and the fan-ornament has curved lines.[4] These horns and the fan form one complete crown.

On figure 'j' of plate XXX we see a cap-like ornament similar to the one on figure 'j' [plate XIV] of Harappa. Some of the head ornaments at Mohenjodaro are similar to those seen on the heads of clay figurines of Harappa, which proves that one of the phases of Harappa culture was contemporaneous with that of Mohenjodaro. On figure 'q' there is another kind of head ornament. It looks like

1. Gadd C. J.—*Stones of Assyria*—*I. L. N.* Dec. 12, 1936 p. 1071.
2. *Ibid. Op. Cit.* fig. 3.
3. Louvre—*Buste de roi sassanide*—Mao 122.
4. The figure appears on the *Śiva* Seal—Marshall—*Op Cit* Vol. I p. 53 pl. XII—17.

a metal cap made out of strips of either gold or silver. On the sides of the cap there are two discs which are ornamented with concentric circles. It almost looks like the monkey cap worn by a sect of ascetics in North India. This metal cap has a foreign look and very much resembles the Grecian head-armour. On figure 'k' there is a tall cap-like crown bound by a fillet, almost like the Parsi cap. In the development from the fan bound with fillet to the fan with panniers and decorated fillets and then to sāfā-like crown we can discern five phases of culture.

Other Sites of Mohenjodaro-Harappa Culture.

From the other sites of Mohenjodaro-Harappa culture a number of terracotta figurines have been unearthed. They wear the same kind of ornaments on their heads as we have just seen. It means that the culture of these sites was contemporaneous with that of Mohenjodaro. Vats discovered from the mound in Chak Purbane Siyal which is about 270 miles east of Harappa three clay figurines.[1] On figure 'a' [pl XXXVI] we see a fan-like ornament on the head with panniers, which suggests it to be of later Mohenjodaro culture.

At Lakhiyo[2] N. G. Majumdar discovered some terracotta figurines along with personal ornaments. On figure 'o' [pl. XXXVI] we see a figurine with fan-like ornament on the head.

Chanhu-Daro—The most important site which has connected Mohenjodaro-Harappa culture with the Amri culture on one end and the late Jhukar culture with Mohenjodaro on the other is, however, Chanhudaro, situated about eighty miles south east of Mohenjodaro in Nawabshah district of Sind. N. G. Majumdar first brought it to the notice of the archæologists[3] in 1932. It was later excavated jointly under the ægies of The American School of Indian and Iranian studies and the Boston Museum.

The various levels have been chronologically arranged by Piggott as Chanhudaro 1-A, Chanhudaro 1-B, Chanhudaro 1-C (Harappa-Mohenjodaro culture), Chanhudaro II (the Jhukar culture), Chanhudaro III (the Jhangar Culture).[4] The uppermost of the

1. M S. Vats—*Op. Cit.*—pl. LXXIV, 32, 33, 34.
2. N. G. Majumdar—*Op. Cit.* p. 76 pl. XXXIV-7.
3. N. G. Majumdar—*Op. Cit.* p. 36, 38.
4. Piggott—The Chronology of Pre-Historic North West India—*Ancient India 1946* p. 13.

two occupations disclose that the people of these levels were unaware of the Harappa culture. (After each occupation a belt of silt and earth appears, which suggests that the town was washed away several times, abondoned, and then reoccupied).

Jhukar Culture—Among the head ornaments found at Chanhudaro belonging to Jhukar culture, so called by Mackay because of the close affinity to potsherds of this level with those of Jhukar, is a broken fillet of copper[1] or bronze. It is 3·45″ in length and is made of thin copper sheet. Similar ornaments for the forehead have been found at Kish, and Tepe Hissar.[2] Unfortunately no gold or silver fillets were recovered by Mackay. The Indian example as well as the examples of the other countries mentioned above appear to have been stiffened by ornamenting the thin metal by embossing some designs[3] which due to corrosion are not quite visible.

A cone of faience[4] was also found at a depth of about 16·7 ft. It is coated with thick light green glaze and is 2·3″ in height and 1·3″ in diameter. It has a loop inside and a hole on one side. It cannot be said with certainty if it belongs to Jhukar culture on Mohenjodaro culture. Most probably it may have gone down below the Jhukar level when the Jhukar people settled on this site.

The most important of the ornaments of Jhukar culture are the pins of bronze[5] and ivory.[6] On figure 'm' [pl. XLII] is illustrated an ivory pin the head of which has *chavern* pattern on it This decoration resembles with some of the decorations on Jhukar amulets and some of the pottery [pl XLII fig. 'j']. Another one is seen on figure 's' 1·72″ in length and 0·17″ diameter, with a mace-like head. The most common shape is to be seen on figure 'n'. It appears to have been made by thinning out one end of copper wire and then coiling it to form the head Curiously enough this type of pin has not been found at Harappa. Even at Mohenjodaro one example is seen This variety of pin evidently belongs to Jhukar.

1. Mackay – *Chanhudaro Excavations* p. 194 (Not illustrated—see foot note).
2. E. F. Schmidt—*Tepe Hissar Excavations—The Museum Journal University Museum Chicago* P. 381 pl CV (a) CXXI (b, d).
3. Mackay—*Chanhudaro Excavations*. p. 194.
4. *Ibid.*—p. 198.
5. *Ibid.*—p. 195.
6. *Ibid*—pl. XLII–11, 13, 15, 18.

culture. Piggott is of the opinion that this is an imported stuff[1]. On figure 'o' there is a double spiral headed hairpin of bronze.

From the upper levels of Lohumijodaro[2] part of a bone pin was found by N. G. Majumdar. Its length is 3·6" [pl XXXIX fig (o)] It bears no decorations. At Sahi Tump,[3] in one of the complete burials a beautifully worked polygonal bead of spinel or ruby was found near the head of a corpse, suggesting that beads were worn on the head, perhaps threaded to a fillet.

The clay figurines found at Chanhudaro exhibit several types of head ornaments. Some of these evidently belong to the Harappa-Mohenjodaro culture and others are of a distinctly different culture. One woman wears a head ornament which is almost like a sāfā (turban). This type of head gear is still worn in the hill districts of Punjab and Kashmir and may be a substitute of the old crown, which perhaps consisted of metal strips. Mackay suggests that this is a new head dress ornament which we come across at Chanhudaro.[4] Such a head dress is seen on figure 'e' [pl. XL]. On pl. LXXV-19 in his *Further Excavations at Mohenjodaro* a somewhat similar head dress is seen. Perhaps that figurine also belongs to Jhukar culture. It is just possible that these figurines represent the foreign people who migrated to India and who used this type of head ornament. It has no affinity to the fan-like ornament, several varieties of which have been described before. It is a type by itself[5] and must have belonged to the people of colder regions [pl. XL figs (e) & (f)]. Another variation of this head ornament is seen on figures 'j' & 'k'.

Even at Harappa there is evidence of the arrival of a new people. Cemetry 'H' shows the same type of ornaments as were found at Sahi Tump, where the last burials seem to have taken place. One stamp seal of faience found at Jhukar level at Chanhudaro bears close resemblance to the faience seal found at Sahi Tump[6]. The

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1. Piggott—*Pre-Historic India*. p. 225.
2. N. G. Majumdar-- *Op. Cit* p. 58 pl. XXII-38.
3. Aurel Stein-Archaeological Tour in Gedrosia, *Memoirs* 43 p. 96.
4. Mackay—*Chanhudaro Excavations* pl LIII-8.
5. *Ibid.*—pl. LIII-2, LIII-8, LIV-4.
6. Piggott—*The Chronology of Pre-Historic India. Ancient India* No. 1. p. 14 fig. 3.

ornamentations on both of them recall Hissar III and Anau cultures[1]. *Possibly the new people who migrated to these areas had some relationship with the people of the West.*

On figure 'e' is seen a crown in the form of a sāfā. It appears to be composed of thin metallic fillets which go over the head across the temple and the forehead. This crown might be a representation of a gold one constructed out of thin strips.

On figure 'c' another variation of the same head ornament is seen Apart from the round crown of fillets there is a round bead at the top. Similarly on figurine 'k' we have the same type of metallic Sāfā of a slightly different style. It goes over the neck covering the ears and the temples On figure 'i' also is seen another form of this head ornament It has a round disc at the top of the crown

On figure 'g', however, no head ornament is seen. The head appears shaved; from which we can conclude that the people of Chanhudaro had among them men who went about with heads shaved like some of the people of Sumer[2] or the priests of Mari[3]

On figure 'a' [pl. XL] we see a decorated fillet going round a bun of hair which is held on one side of the head. The fillet has incised markings and is somewhat similar to the fillet on figure 'j' of plate XXIX of Mohenjodaro, which shows the continuity of tradition among the original inhabitants of this site.

On figurine 'd' we see a fan-like ornament on the head. The fan is broken. It is a seated figure with legs folded back, like a Muslim, at his prayers The head ornament of this figurine compares well with that of figurines of Mohenjodaro culture, though no figurine in a similar sitting posture has been found there It is possible that this figurine may be a representation of the defeated people of an earlier culture.

On figure 'b' we find temple ornaments on the figurine. It is of the disc type, perhaps held together by a fillet.

On figure 'h' the ornament consists of metallic leaves arranged in the shape of a crown. It is a new type of head ornament.

1. Piggott—*The chronology of Pre-Historic India. Ancient India* No. 1 p. 21.
2. B. Hrozny B.—Ancient History of western Asia, India & Crete p. 76 fig 37. Statue of Prince *Gudea* Woolley—The Development of Sumerian Art. pl. 62 a.
3. Hrozny'—*Ibid.* p. 68. Fig. 31.

On figure 'f' again a sāfā-like crown composed of thin fillets is seen. The left side of the front fillet is however incised.

On figures 'j' and 'k' we have the front and the side view of another variation of a sāfā-like crown.

The development from the simple sāfā-like crown on figurine 'e' to figurines 'e' and 'f' where these crowns were decorated by additions of discs etc. clearly points to the existence of two phases of this culture, excluding the Mohenjodaro culture.

Jhangar Culture ;—The discovery of incised pottery of polished grey ware at Chanhudaro[1] and also at the upper levels of Jhukar[2] leads us to the conclusion that after the migration of Jhukar people from the locality the mounds were occupied by a fresh stock. Their wares have distinctive features of their own. With the exception of a bead of a peculiar design no other ornament of this culture has so far been found.

This analysis of the head ornaments of the Indus civilization shows clearly that there are at least two phases of Quetta culture from which the terracotta figurines have been found, two separate phases of Amri-Nal culture, three phases of Kulli-Mehi culture, four phases of Harappa culture excluding cemetery, five phases of Mohenjodaro and two phases of Jhukar culture.

From the actual finds and the terracotta figurines we can safely conclude that the people of the Indus Valley had developed a culture of their own. In its later phases they used quite elaborate head ornaments. Their intricate workmanship proves the existence of artists who were keen on introducing and inventing new designs and craftsmen who knew how to execute the idea in copper, silver, gold, shell and faience. With the advent of the Jhangar people this culture seems to have come to an end.

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1. Mackay—*Chanhudaro Excavations* p. 133 pl. XXXIX—1-8.
2. Majumdar—*Op. Cit.* p. 10 pl. XXXI—9, 13.

CHAPTER II

EAR ORNAMENTS.

Ear ornaments like rings and tops discovered on the various sites and similar ornaments seen on the terracotta figurines lead us to presume that ear ornaments were widely in use in the Indus Valley civilization. Holes in the ears of Terracotta figurines[1] suggest that the women of Indus Valley used to have their ears pierced for wearing ear-rings some of which are quite elaborate in design.[2] The male figures usually have no ear ornaments.[3]

Quetta Culture—From the preliminary report of the excavations carried out by the Anthropological Department of the United States of America it is not clear if some ear ornaments were found at Damb Sadat and other sites. The clay figurines found at Damb Sadat have some projections near the ears which may have been added by the potter to represent the ear ornaments. On fig. 'a' [pl. I] we see oblong drops near the ears while on figurine 'b' we have cones near the shoulders. We come across these two types of ornaments on the ears of later figurines also.

Amri-Nal Culture—No ear ornaments have been found from Amri Sites like Amri, Pandi Wahi and Shah Hassan. From Lohri, however, a vitreous paste fragment is reported by N. G. Majumdar[5] The diameter of this piece when complete would have been 1·8'; too big for the fingers and too small for the wrist. At Ghazi Shah a silver ear-ring fragment made of thin silver wire has been found.[6] It is 0·75' in diameter [pl. II fig. (h)].

1. Mackay *Chanhudaro Excavations* pl LIV-7, Marshall—*M I C*, pl CXLII-11 Mackay—*Further Excavations* pl. LXXIV-15.
2. *Ibid* —pl. LXXVII-2
3. Wheeler—*The Indus Civilization* pl. XVI; pl. XVIII-a; Vats—*Excavations at Harappa* pl. LXXVI-11, 20.
4. Fairservis—American Museum Noviates-No. 1687 Sept. 1952-p. 13.
5. Majumdar, N. G.—*Op Cit.* p. 75, LR.-193.
6. Majumdar, N. G.—*Op Cit* p. 103 pl. XXXIII-49,

At Nal a steatite seal has been found[1] with a pierced lug at its back. It looks remarkably like an ear-top mould. Two plaster sealings taken from it are represented here on figures 'p' and 'q' [pl. III]. They are in the form of eyes and are decorated with a vulture which has a snake in its claws. In each there is a circular hole near the bird's head where, perhaps a spherical bead was fixed to represent the eye of the vulture, through which passed a wire to make the hook for wearing it in the ear. The clay figurine[2] found at Nal, however, has no ornaments on its ears and, therefore, it is not possible to find the ear ornaments which were in fashion at Nal.

Zhob Culture—From Moghal Ghundai[3] Zhob Culture sequence, two bronze wire rings have been found [pl. IV fig. (i)]. No other ear-rings are reported from other sites of this culture.

On the ears of figurines found at Sur Jangal,[4] Kundani,[5] Periano Ghundai,[6] and Dabar Kot[7] long ear drops are observable, [pl. IV figs. (a) & (e)]. In some cases they drop from the ears and come up to the neck. These tapering ear-drops look quite long at least on figurines 'b' and 'd' [pl. IV]. The ear-drop on figurine 'b' seems to have a round disc at the top and a cylindrical piece attached to it. Similar stone cylinders have been found at Harappa[8] and Mohenjodaro.[9]

Kulli Mehi Culture—No ear ornaments were found by Aurel Stein on Kulli and Mehi Sites, but some of the terracotta figurines[10] have two protruding portions near the ears, suggesting that studs of conical shape were in use [pl. VI figs (a), (b), (d) & (e)]. On figurine 'k' [pl. VI], however, a disc-like ornament

1. Hargreaves—Excavations in Baluchistan—*Arch. Surv. of India Memoirs 35* pl. XV-7.
2. *Ibid.*—pl. XXI-19.
3. Aurel Stein—An Arch. Tour in Waziristan and North Baluchistan—*Memoirs 37* p. 48 pl. XII, m. n. w. XVII.
4. *Ibid.*—pl. XVI-68.
5. *Ibid.*—pl. XII-K 14.
6. *Ibid.*—pl. IX P. W. 9.
7. *Ibid.*—pl. XVI D. N. D. 9.
8. Vats—*Excavations at Harappa*—pl CXXXIX-36-39.
9. Mackay—*Further Excavations at Mohenjodaro* pl. CXXXV-8.
10. Aurel Stein—An Archæological Tour in Gadrosia; *Memoirs 43* pl. XXXI Mehi III-2, 2; Mehi III-8, 3; Mehi III-6, 7; Mehi III-4, 10.

is noticeable on the right ear. On figurine 'i' merely a tuft of hair is seen. On figurine 'h' again a disc-like ornament is visible on the right ear. The other figurines, however, give us no idea of what ear ornaments they used to wear. These ornaments, however, appear much simpler in comparison to those we notice at Harappa [pl. XVII] or at Mohenjodaro [pl. XXXIII-A].

Harappa Culture—When, however, we come to Harappa Culture we come across several pieces of ear ornaments which can be divided under several groups; ear-tops, ear-studs, ear-drops, ear-rings and ear-pendants [pl. IX figs (b), (c), (d), (e), and (f)]. We have some ear-tops out of the several found at Harappa. They[1] have knobs at the back and except for the one on figure 'c' all are of faience. On figure 'b' we come across a top ornamented with a four pointed star or arcs of a circle circumscribed by a plain border followed by a cabled one. On figure 'c' we come across a disc of burnt steatite. It has a foliage border which encloses a four pointed star in plain circle. There is a hole in the centre which is intersected by another one at right angles in the knob at the back, possibly to carry another piece of ornament like a bead or a small disc of gold. On figure 'd' is illustrated another ear-top of faience with two circles, one plain and the other cabled near the edge. The central portion of this piece is plain except for a hole. The edges of the disc are dented perhaps to simulate the cogwheel. The central hole in this case also may have been used for ornamentation of the stud. On figure 'e' we see another ear-top with a four pointed star in the centre and a plain border round it. On figure 'f' the stud has no ornamentation except a cabled border near the edges. Its diameter is ·9". This may have been the earliest form of this ornament from which the more complicated form seen on figure 'c' may have developed. It is of faience like the others. The diameter of these ear-tops is round about 0·85"[2]. From the designs of these ear-tops four phases of development are noticeable, the earliest being that on figure 'f' and the latest being that on figure 'c' [pl. IX.]. The additions in the original designs may have come by efflux of time.

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1. Vats—*Op Cit.* p. 445, 446-pl. CXXXIX-8, 11, 12, 13, 14.

2. Such buttons are still in vogue in *Kāthiāwāḍ* and in South India—Vats—*Op. Cit.* p. 445 (Foot note)

Here we come across discs in cogwheel design which Vats describes as nose studs.[1] They are actually ear-tops like the ear-tops described previously, for we see no nose ornaments on the clay figurines of the Indus Valley. In fact we do not come across any sculpture in India prior to the advent of the Muslims where we find a nose ornament, as we shall see in the next chapter. One of these discs is on figure 'o' [pl. IX.]. It is of blue faience and is of 0·7" diameter. It has a hole in the centre and a convex back. Other discs of a similar shape have also been found. In form they look very much like the design on the pot found at Chanhudaro[2] which Mackay describes as the sun motif.[3] The central hole may have carried some other piece, perhaps a bead. In size also they are not very much smaller than the other studs described before.

We come across a word *Karna Śobhanā* in the *Rgveda*.[4] This word is still current in Bengal and denotes a round ear ornament almost like the ones we see on figures 'b' 'c' 'd' 'e' and 'f' [pl. IX]. In Punjab a similar ornament is known as *Karna-Phūla*.[5] Such round ear-studs of silver and gold with designs of lotus are still worn in North India. We can thus safely conclude that these are ear-studs.

Of ear-drops, found at Harappa, one is illustrated on figure 'm' [pl. IX.]. It is of burnt steatite, in the form of a plum.[6] It has a hole at the top and its centre is raised to form a convex triangular disc. It is greenish grey in colour and is 0·45" in length. An almost similar[7] ornament is seen on fig 'm' [pl. XVII]. Two other ear-drops[8] of similar shape found at Harappa are of unburnt green steatite and are 0·60" and 0·65" in length.

Two ear-pendants[9] found at Harappa are of a distinctly different shape [pl. IX figs. (g), (h)]. They are of faience. The piece on

1. *Ibid*—p 445. pl. CXXXIX–26, 28.
2. Mackay - *Chanhudaro Excavations*—pl. XXIII–4
3. Mackay E—Arts & Crafts in the time of Mohenjodaro. *Indian Arts and letters* Vol. VIII No. 2. (1939) p. 77.
4. *Rgveda*—VIII–67, 3.
5. *Designs in the Traditional Jewellery*—Punjab–*Marg* VI–1 (1952) p. 61
6. Vats—*Excavations at Harappa* pl. XXXIX–31 p. 447.
7. *Ibid.*—pl. LXXVII–46.
8. *Ibid.*—pl. CXXXIX–33, 35.
9. *Ibid.*—pl. CXXXIX–40, 25.

figure 'g' is in the form of a tapering cylinder with holed conical end for suspension, its total length being 1·7". The one on figure 'h', however, has a disc at its base *0·3" in diameter, bevelled at the edges and inlaid with a thick piece of copper.* At the top a cylindrical portion is seen. It has a hole for suspension. A similar ornament is seen on a figurine found at Mohenjodaro.[1] Several ear-studs[2] found at Harappa are of the shape seen on figure 'i' [pl. IX]. They are all of faience measuring 0·4" in length and 0·3 to 0 35" in diameter. They are Dumble-shaped and may have been worn as ear-tops at home. Copper ear-rings found at Harappa are practically simple in form.[3] On figures 'p' and 'q' two ear-rings are illustrated. They are of thin wire and their diameters vary from 1·2 to 1·65". One of a thicker wire has also been found.[4] Ear-rings made of gold wire of similar shape are still in fashion in India. Several ear-rings of thick and thin copper wire have been found. One of them is illustrated here [Pl IX fig, (q)].

Ear ornaments as seen on the clay figurines found at Harappa are illustrated here [pl. XVII]. Though crudely depicted, the forms of these ornaments speak of the well developed taste of the inhabitants of the Indus Valley. In quite a number of cases it is dificult to distinguish them as they are completely covered by the head ornaments, but those that can be recognised have distinct characteristics of their own. Here it may be mentioned that on one of the figurines found at Harappa we see holes in both the ears[5] indicating that ear ornaments used to be worn in both the ears. On the ear of figurine 'a' we see an ornament like the snake charmer's fiddle.[6] Perhaps this may have been constructed by threading together two beads, one spherical and the other tubular with a copper wire like the Carnelian bead threaded to a copper wire found at Harappa[7] which perhaps formed part of a pendant like the ones we see on necklaces illustrated by Vats.[8] On the ears of figurines 'b' and 'o' we see metallic round

1. Marshall—*Mohenjodaro & the Indus Civilization*—Pl. XCV–8.
2. Vats—*Excavations at Harappa*—pl. CXXXIX–26-28 p. 446.
3. *Ibid.*—pl. CXXV–3-7, 54.
4. *Ibid*—pl. CXXV–54.
5. *Ibid*—pl. LXXVII–49.
6. *Ibid*—pl. LXXVII–31.
7. Vats—*Op. Cit.* p. 434.
8. *Ibid*—pl. CXXXVII–9-13.

ear-rings while on figurine 'c' we have a cylindrical ear-stud decorated at the base with circular lines. On figure 'd' we have a kindney-shaped ornament, perhaps of faience. Similar ornaments with slight variations are seen on figures 'f' and 'g'. On figure 'e' we have an ear-top in the form of an irregular top, while on figures 'h' and 'j' there are cones set on round discs. We have on figurine 'i' two oblong rings joined together to form an ear-ring, while on figure 'k' the ornament is in the shape of an inverted lotus bud. On figure 'l' there is an oblong decorated disc, while on figure 'm' there is an ornament in the form a cylinder. On figurine 'n' we have an ear-pendant consisting of leaves dropping from a cup almost like a *Jhumkā*, while on figure 'p' there is a pendant with one leaf attached to cones at the top. It appears that flowers and leaves used to be worn in the ears in the most primitive society as ornaments and the forms of these ornaments have been derived from the actual flowers and leaves. Later on the permutations and combinations of designs led to metamorphic changes in their shapes. It appears that from the bud-shaped cones various flower-shaped disc ornaments developed and the ordinary leaf-shaped drops gave birth to *Jhumkā* type of ear-ornaments.

Mohenjodaro Culture—At Mohenjodaro also like Harappa ear-tops, ear-studs, ear-rings and ear-pendants have been found. In the first hoard found by Mr. Dikshit there are tops of silver.[1] They look like back collar buttons but are ear ornaments [pl. XX figs. (i) and (j)]. They have no decoration on them. In the second hoard two studs of gold were found.[2] They are 1·2″ in diameter and have beadings round the edges, so cleverly soldered that the pieces look as if they have been cast in a mould [pl. XXIII figs (i) and (i′)] In the centre of these ear-tops there are depressions circular in form. In section they are flat cones and have hollow tubes at the back, 0·5″ in length and 0·27″ in diameter. They appear to be tapering towards the ends.[3] Perhaps small discs used to be fitted to these tubes for wearing them on the ears.

Some of the ear-tops of faience[4] found at Mohenjodaro resemble

1. Marshall—*Mohenjodaro & The Indus Civilization* pl. CXLVII–11.
2. *Ibid*—pl. CLI–b, 7, 8.
3. *Ibid*—pl. CLI–b 11.
4. *Ibid*—pl. CLII–7, 8, 14; Mackay—*Further Excavations at Mohenjodaro* pl. C–12, CXXXVI–91. 90; CXL–42, 43, 46, 61.

in form to those unearthed at Harappa[1]. The most common decoration, here on the disc, is a four-pointed star enclosed within a cabled border like the one on fig 'd' [pl. XXVII]. They have knobs at the back as we see on fig. 'e' [pl. XXVII]. The diameter of the back boss ranges from ·31 to ·55" and thickness from ·3 to ·55". Generally they are of greenish grey colour. Their diameter ranges from ·6 to 1·0". One has been found by Marshall.[2] It has a diameter of 0·6" and thickness 0·35". It may have belonged to a young girl. The other[3] has 0·8" diameter with projection at the back, like what we see on fig 'e' [pl. XXVII]. Its edges are serrated and it has four-pointed star in the centre. A third one[4] measures 1·0" in diameter. It has the same decoration in the centre of the disc, but its edges are smooth. The central decoration is enclosed within a cabled border. Some eight discs in faience of this type are illustrated by Mackay. Some of them are exactly similar in form and decoration to those found by Marshall[5] and some a little different. One found by Mackay[6] is of 0·11" diameter and has a back boss of 0·31". It has a four-pointed star with a small circle in the centre. The second one illustrated by him has 0·76" diameter with a boss of 0·31" and is 0·4" in thickness.[7] It is of green grey colour. The third one[8] is in grey paste. It has a diameter of 0·83" and the boss measures 0·32". Its thickness is 0·52" These two have four-pointed star on the discs. The fourth[9] and fifth are of moulded faience with no traces of colour except red in crevices. They have four-pointed star on the discs enclosed within cabled borders. They are 0·85" in diameter with a boss of 0·43". The sixth[10] one has the same design on it but is a smaller piece. It is 0·69" in diameter with a boss 0·3". and thickness of 0·3". It is of light yellow colour. The seventh,[11] how-

1. Vats—*Excavations at Harappa* pl. CXXXIX-8, 9, 13.
2. Marshall—*Op Cit.* p. 528 pl. CLII-7.
3. *Ibid*—pl. CLII-8.
4. *Ibid*—pl. CLII-14.
5. Marshall—*Op. Cit.* pl. CXL-42, 43.
6. Mackay—*J. E M.* pl. C. 12 p. 532.
7. *Ibid*—pl. CXXXVI-90.
8. *Ibid*—pl. CXXXVI-91.
9. *Iibd*—pl. CXL 42, 43.
10. *Ibid*—pl. CXL-46.
11. *Ibid*—pl. CXL-61.

ever, has a different design on its face. Instead of the four-pointed star it is decorated with circles and has cabled border. In the centre there is a hole which passes from front to back, perhaps to carry some other pieces of ornamentation. It is 0·85" in diameter with a boss of 0·35" and thickness of 0·4". The eighth[1] with a boss of 0·31". has a diameter of 1·0". It has in the centre a four-cornered star with a plain border. On the edges there are slanting lines. It may be mentioned here that no ear-top of simpler designs as seen at Harappa have been found here on fig 'f' [pl. IX]. Thus on stylistic grounds the ear-tops of Mohenjodaro equate with those on figures 'c' and 'b' [plate IX] of Harappa. We thus have here only two later phases of development.

Similar ear-tops have been found at Chanhudaro from Mohenjodaro level. They, however, differ a little from the ones of Mohenjodaro and thus mark a development. For example, on figure 'j' [pl. XXXVIII] we have a disc[2] which has a four-cornered star enclosed within a cabled border but on the four sides outside the arcs within the circle we find oblong raised decorations. It is of faience light green in colour, like some of those found at Mohenjodaro but there is rather a thick boss at the back. On figure 'l' there is a plain top of faience. Perhaps it was covered with a plate of gold or with some design which has separated itself from it. On figure 'k'[3] there is another disc which has wavy edges. The front part seems plain. The average diameter of these studs is 0·84".

Mackay feels that the design of four-pointed star we come across on the ear-tops had some talismanic value.[4] Similar design is seen on a potsherd[5] at Susa and also on the Royal Gaming Board.[6] An early pottery figurine from Mesopotamia is also seen wearing a similarly designed ornament.[7].

Some of the ear-studs found at Mohenjodaro[8] almost correspond

1. *Ibid*—pl. CXLII-5.
2. Mackay—*Chanhudaro Excavations*. pl. LXXVII-8.
3. Mackay—*Chanhudaro Excavations*. pl. LXXVIII-16.
4. Mackay—F. E. M p. 532.
5. *Memoire delegation en Perse*. t. XIII-pl. XI-fig. 3.
6. Evans—*Palace of Minos*-pl. V p. 266 (h).
7. Musee de Louvre—nu. 19131.
8. Machay—*F. E M.*-p. 532.

in shape[1] to fig. 'e' [pl. XXVI]. They are of triangular shape, and have grooves round the edges, and are in section 0·02″ wide and 0·05″ deep, with a diameter of 1·52″. They are otherwise plain and are made of hard black stone.

Among other objects found by Mackay at Mohenjodaro there are two discs of shell[2] [pl. XXVIII–A figs (f) and (h)]. They look like parts of ear-studs and may have been worn after being attached to a thick wire. They have holes in the centre. On figure 'f' the design incised is of a wheel with spokes and on figure 'h' the design perhaps represents the sun in motion revolving round the earth.

An ear-drop of bronze[3] is illustrated here on figure 'c' [pl. XXVII]. It is in the shape of a pot and resembles the ear ornament faintly visible on one of the clay figurines found at Mohenjodaro.[4] It was found badly incrusted. It might have been covered with gold.

More beautiful ear-pendants were found at Chanhudaro[5] from Mohenjodaro level [pl. XXXVIII–figs (g) and (i)]. The overall measurements of the ear-pendant on 'g' are, length 1·61″, breadth 1·31″ and thickness 0·62″. The copper cones are separated by steatite beads of disc shape. Each set of copper cone is joined together with a copper wire. It is possible that these copper cones had thin foils of gold on them which have disappeared. On fig. 'i' there is another piece which represents two tulips joined together. The tulip-shaped bells are of copper joined together with a copper rod. These bells are 0·39″ in length and 0·65″ in diameter. The copper rod is 0·06″ thick. Strung to this in between the two cups is a bead of copper.

Black stone-pendants[6] of the type seen on figs. 'a' and 'c' [pls. XXVII and XXVI] respectively have also been found at Mohenjodaro. They resemble in shape to those found in Harappa.[7] They have grooves near the top to take the wire ·and perhape they used to be hung to the ear lobes.

1. *Ibid.*—pl. CV–27; CVII–7; Marshall—*Mohenjodaro & The Indus Civilization*—pl. CXLVII–30, 34, 36.
2. Mackay—*F. E. M.* pl. CXXXVI–70.
3. Marshall—*Mohenjodaro & The Indus Civilization* pl. CXLIII–11.
4. Mackay —*Further Excavations at Mohenjodaro* pl. LXXV–9.
5. Mackay—*Chanhudaro Excavations*—pl. LXXVIII·1, 2.
6. Mackay—*F. E. M.* p. 522-CXI-53, CXXXVII–11-13.
7. Vats—*Excavations at Harappa.* pl. CXXXIX–39.

Several ear-rings of copper, bronze and silver have been found at Mohenjodaro level. One of the two silver rings[1] found in the first hoard is illustrated on fig 'e' [pl. XX]. They are of silver wire roughly bent round with ends overlapping A copper ear-ring evidently meant for a child[2] has been found at Lohumjodaro. Its diameter is 0·6".

Some of the ornaments as seen on the clay figurines of Mohenjodaro are illustrated here [pl XXXIII A]. Some of the figurines have different varieties of ear ornaments on their two ears[3] but most of them have similar ornaments in both the ears.[4] On figure 'a' we have a thick ear-ring slightly triangular in section. On figure 'b' we have a cone-like ear-top worn horizontally. A similar ornament is seen on another figurine unearthed by Mackay, while on figure 'f' we have the same type of cone worn a little slantingly. On fig 'c' the ear ornament is in the form of a bugle. On fig' 'd' we have an ear-pendant the upper portion of which is spherical. Its middle portion is of conical shape and the lower portion looks like a mace with a round head and baton. On fig. 'e' we have an ornament composed of three triangular pieces superimposed one on another. On fig. 'g' we have an ear ornament with a spherical piece attached to a metal strip. Perhaps a spherical bead used to be worn like this. On fig. 'h' we have an ear pendant of a rectangular shape attached to the ear with a metal strip. On fig. 'i' we have a top-like ear-drop decorated with a circular line decoration. On fig. 'j' there is again an ear-ring but this ring is not circular; it is in the shape of a projecting triangle. On fig. 'k' we have an 'L' shaped ornament while on fig. 'L' the ornament is composed of two oblong pieces arranged one over the other. Some other figurines wear disc tops on their ears, like the ones described before.[5]

It looks as if the ear-tops generally used to be made of faience which could easily be moulded in the desired shapes. The rings and cones, however, used to be made of gold, silver and bronze.

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1. Marshall—*Mohenjodaro & The Indus Civilization.* p. 519 pl. CXLVIII 1 others on CXLIII-11.
2. Majumdar—Explorations in Sind *Memoirs* p. 56 pl. XXXIII-27.
3. Marshall—*Mohenjodaro etc.* pl. XCIV-4.
4. Mackay—*F. E. M.* pl. LXXII-6.
5. Mackay—*Further Excavations* pl. LXXIV—24, LXXV 11.

There is one clay figurine which Mackay has found at Chanhudaro[1] from the Harappa level. It has two loops with holes near the neck in the place of ears. From this figurine we get some evidence of the fact that the Indus Valley people used to have their both ears pierced for wearing ear ornaments and the holes used to bear large discs. Perhaps they had not till then adopted the fashion of lengthening the ears as we see on later figures.

Jhukar Culture—At Sahi Tump, which perhaps represents the phase of Jhukar culture[2] Aurel Stein found in one of the graves a copper disc[3] with raised edges near the head [pl. XXXIX–fig. (z 4)]. It has raised geometrical arcs of a circle, but unlike the motif of Mohenjodaro culture it has no rectangular design in the centre. Instead there are two oblong raised portions at both ends. This may be one of the ear ornaments as the situation of its find indicates.

From Chanhudaro N. G. Majumdar recovered a conical ivory piece.[4] It is corrugated, and is 1·5″ in length. It may be an ear-cone ornament as its shape suggests. We come across similar ornaments on the ears of some of the figurines of Mohenjodaro[5] and it is possible that the fashion of wearing cone-shaped ear-studs continued among old residents up to Jhukar period. The later excavation of Chanhudaro by Mackay brought before us several ear-rings.[6] They are plain rings with overlapping ends like those of the bangles. They are made of round wire of copper 0·12″ in diameter. One, of square wire has also been found. It is 0·11″ in section.[7]

The clay figurines of Jhukar culture have head ornaments which cover the ears [pl. XI.] and except for figure 'b'[8] it is not possible

1. Mackay—*Chanhudaro Excavations* pl. LIV–7.
2. Piggott—The Chronology of Prehistoric India—*Ancient India* No 1 p. 17.
3. Sir Aurel Stein—An Archaeological Tour in Gedrosia *Memoirs. 43* p. 98, pl. XIV–Ia.
4. Majumdar, N. G.—Explorations in Sind. *Arch. Surv. of India Memoirs* 48 p. 41 pl. XVII—24.
5. Marshall—*Mohenjodaro & The Indus Civilization*—pl XCV–26, Mackay—*Further Excavations at Mohenjodaro*—pl. LXXV–1.
6. Mackay—*Chanhudaro Excavations* p. 143, pl. LXXIII—20, 21.
7. *Ibid.*—No. 3168 from sq. 9/D to e–175 lev + 7·9′.
8. *Ibid*—pl. LIV—9.

to find what type of ornaments were in use. Even on this figure there are holes on the ears where there ought to have been ornaments.

Jhangar Culture—From this level of culture no ear ornaments have so far been discovered.[1]

Thus, we can conclude that the Indus Valley people used to have both their ears bored[2] like their pre-hittite and Babylonian bretheren[3] and wore ornamented ear-tops, ear-studs, mainly of of faience, ear-pendants of beautiful stones and ear-rings of silver and bronze. On stylistic grounds the ear ornaments so far found belong to four phases of development at Harappa and only two later phases at Mohenjodaro. We also get two phases of development at Jhukar.

1. Majumdar—*Explorations in Sind* p. 78, 79; Mackay—*Chanhudaro Excavations* pl. XXXVII.

2. *Ibid.*—pl. LIV–9, Vats—*Excavations at Harappa* pl. LXXVII—9.

3. *British Museum*—figure of a woman Pre-Hittite—No. 38186; Babylon No. 127442, 119178.

CHAPTER III

NOSE ORNAMENTS

The widespread use of nose ornaments today in India like nose-studs (*phūla*), nose-rings (*natha*) and nose-pendants (*bulāka*) has created a misconception that wearing of nose ornaments is an ancient Hindu custom based on religious sanction. In the first place it is not only Hindu women of India who wear nose ornaments as is generally supposed by writers like Blanchot who says[1] "Ce bouton de narine en or ou en pierreries que les femmes hindoues de certaines castes portent encore maintenant ...", but the Muslim ladies also perform certain vows in the name of renowned saints and make their children wear *nathunīs* (nose-rings).[2] In the second place there is no religious sanction behind this ornament as we do not come across any ceremony like the piercing of nose in *Gṛhya Sūtra* literature[3] or in *Karmakāṇḍa.* How and when the nose ornaments, which presuppose the piercing of various parts of the nose, came into vogue in India are questions which still remain disputed. Perhaps on the basis of the present practice of wearing nose ornaments, Earnest Mackay takes a substantive position.[4] "I cannot but think that the fact that nose-rings were not mentioned in Sanskrit literature is an insufficient reason to assume that they were not worn in many parts of India in early times" He has tried to identify some of the studs found at Mohenjodaro as nose ornaments.[5] Even Vats, perhaps overcome by the opinion of western scholars has described some of the ornaments of Harappa as nose-studs.[6] Mackay's statement is rather

1. Blanchot, I. L. *Les Bijoux Anciens* p. 130.
2. Shureef Jaffur & Harklots, G. A —*Qanoon-i-Islam or the Customs of the Musulmans of India*—(London, 1832) p. 210, 275.
3. Oldenberg, Herman—*The Gṛhya Sutra* (Oxford, Clarendon Press Introduction)
4. Mackay, *Further Excavations at Mohenjodaro* p. 532.
5. *Ibid* pl. CV-27, CVII 17 etc.
6. Vats—*Excavations at Harappa.* pl. CXXXIX-2F, 28.

positive in face of what Cunningham says,[1] "There is no nose-ring and I may note here that I have not observed the use of this hideous disfigurement in any ancient sculptures..." Of course, how could Mackay be convinced by the views of K. N. Chatterji whose article[2] he quotes, when he brushes aside the opinion of Cunningham is something which is not easy to explain.

In order to determine if nose ornaments were worn by Indians in ancient times the various possible sources of information and evidence can be, (i) Sculptures, (ii) paintings, (iii) seals, coins and plaques, (iv) literary references, (v) religious ceremonies and (vi) customs. These should be closely examined before advancing any opinion on this question.

Sculptures—We get three varieties of sculptures in India representing human figures (a) terracotta figurines (b) stone sculptures and (c) bronze, and plaster plaques.

(a) None of the clay figurines found from different sites of the Indus Valley civilization wear any nose ornaments. In spite of his statement, Mackay has not pointed out one figurine where we may find traces of a nose ornament when figurines with holes near the ears have been cited perhaps as proof of the fact that ear ornaments were worn.[3]

The terracotta figurines from *Hastināpura* from the Mauryan level have no nose-ornament.[4] The figurines found at *Pātali Putra* from Mauryan and post Mauryan levels also do not wear any nose ornament. One of the important figurines is that of the *Natī*. It was found by Jackson and Bannerji near Patna college.[5] It has no nose ornament and similar is the case with other terracotta figurines of this period in Patna Museum.[6]

1. Cunningham—*Stupa of Bhārahut* p. 34.
2. Chatterji, K. N.—*'The use of nose ornaments in India' Journals of Asiatic Society of Bengal* Vol. XXIII 1927 p. 288.
3. Mackay—*Chanhudaro Excavations* pl. IV–7; see also Vats Harappa–pl. LXXVII–49.
4. B. B. Lal—*Excavation at Hastinapura–Ancient India*–10–11–pl. XXXVI–1.
5. Jackson & Bannerjee Sastri—*Indian Historical Quarterly Journal* March 1933, p. 154–156.
6. Patna Museum BXR, 71/6584 BXR, 57/6588 BXR, 53/6600 BXR,3/6650 BXR/6599 BXR, 54/6292 B. D. G. 54/4420 K. M. B. 25/7714 B. D. G. 47/1071 B. D. G. 49/4248 BXR, 125/6663 BXR, 16/6302 P. T. N. 35/8582 P. T. N. 27/6770 P. T. N. 8/9369.

The early Sunga terracotta figurines found at *Kosam* also do not wear any nose ornaments.[1] A number of them at Municipal Museum Allahabad were examined for this purpose. The figurine of this period illustrated by Coomarswamy[2] also does not wear any nose ornament.

Similar is the case with terracotta figurines in the Mathura Museum. They also have no nose ornaments.[3]

The unpublished collection of terracotta figurines found at Rajghat and preserved in *Kalā Bhavan* also have no nose ornaments.[4] Even the Gupta period terracotta figurines do not wear any nose ornament.[5] Similarly none of the terracotta figurines illustrated by Coomarswamy which belong to a fairly long period of Indian History has nose ornaments.

(b) The Stone Sculptures[7] of the Indus Valley, like the terracotta figurines have no nose ornaments. The medieval terracotta figurines from *Ahichchatra* also have no nose ornaments[8] nor do we find this ornament on the *Dīdārgunj Yakṣī* of Patna.[9] Similarly there are no nose ornaments on the sculptures of Bhārhut which are otherwise heavily ornamented. Cunningham says, "The two sexes have in common ear-rings, necklaces as well as armlets, bracelets and embroidered belts. The women alone use forehead ornaments, long collars, garlands, zones or girdles and anklets. There is no nose-ring.[10]" The figures of *Cullāko-kā devatā* and *Sirimā devatā* can be seen.[11]

1. Kala S. C.—*Terracotta Figurines from Kauśāmbi*—pl. IV-A, V-B, VI-A etc.
2. Coomaraswamy, A.—History of Indian & Indonasion Art pl. XVII-60.
3. Agrawala, V. S.—*Handbook of the Sculptures in the Curzon Museum* pl. V fig. 9, pl. VI. 10, 11, 12; pl. VIII-14, 15.
4. Unfortunately not yet published,
5. Agrawala, V. S.—Terracotta figurines of *Ahichchhatra-Ancient India* No. 4-A, B etc.
6. Coomaraswamy, A.—Archanic Indian Terracottas; *Marg* Vol. VI-No. 2 (1952) p. 22-34, fig. 1, 3-50.
7. Wheeler—*The Indus Valley Civilization* pl. XVI, XVIII A.
8. Agrawala, V. S.—Terracotta figurines of Ahichchhatra—*Ancient India No. 4* pl. LV-253; LXIX-309.
9. Coomaraswamy, A.—*History of Indian & Indonasian* Art pl. V-17.
10. Cunningham—*Stupa of Bhārhut* p. 34.
11. *Ibid*—pl. XXII, XXIII.

The women on the stone relief of Bhita also do not have any nose ornament.[1] Similar is the case with the figurines under the Surya plaque of Bodh Gaya.[2]

The Sanchi Stupa figurines of Śunga or early Andhra period also have no nose ornaments.[3] We find on them several types of ear-rings[4], head ornaments[5], garlands[7] and girdles[8] etc. Similar is the case with the *Śāla bhañjikā* from Kauśāmbi.[9]

Similarly on early Kushan sculptures in Calcutta Museum there are no nose ornaments[10] to be seen. Though there are several figures of women who wear heavy jewellery on their person yet this particular ornament is conspicuous by its absence.

Sculptures from Udayagiri cave of Rāni Gumphā have women figures wearing heavy jewellery but there are no ornaments on their noses.[11] The *Yakshī* of Lucknow Museum[12] or the woman with child[13] on the pillar of Mathura Museum have no nose ornament. Similar is the case with *Yaksha Dampati* of Mathura Museum[14] which is described by Dr. V. S. Agrawala as Indo-Persipolitan.[15] The woman in the New Bacchanelian group from Maholi also has no nose ornament.[16]

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1. Coomaraswamy—*History of Indian and Indonasian Art.* pl IV. 13.
2. *Ibid*—pl. XVII–61.
3. *Ibid*—pl. XIV–51–52 ; XV–53.
4. Marshall and Foucher—*The Monuments of Sāñcī* Vol. II, pl. XXVI–(top).
5. *Ibid*—Vol. II pl. VII; XXVI.
6. *Ibid*—Vol. II pl. XLVI.
7. *Ibid*—Vol. II pl. XXVI; XXVII.
8. *Ibid*—Vol. II pl. XXV; XXVII.
9. S. C. Kala—*Sculptures in the Allahabad Museum* pl. XV.
10. *Indian Museum Calcutta*—Birth of Buddha (from Swat Valley) No. 5034 great renunciation No. 5043.
11. Cohn, W.—*La Sculpture Hindoue* pl. 9.
12. Coomaraswamy—*History of Indian & Indonasian* Art pl. XX–75.
13. *Ibid*—pl. XXI–81.
14. Agrawala, V. S.—*Handbook of the Sculptures in the Curzon Museum* (1939) pl. XIV–28.
15. *Ibid*—p. 35.
16. *Ibid*—pl. XI–24.

On the women figurines of Amaravati also there is no nose ornament. The sculptures in the British Museum and other museums were examined piece by piece but no nose ornament was noticed. Examples from the plaque showing[1] "The women round Budha trying to dissuade him from the worries by their charm" or the women in the scenes from the life of Budda in the Madras Museum[2], or the sculptured women on the casing slab in the same museum[3], bear testimony to this fact.

The figurines in Kanheri Chaitya Hall also do not wear any nose ornament[4] nor do those in the Avalokitesvara panel[5].

On the sculptures of Ajanta, for example, *Nāgarāja's* queen of cave No. XIX, has no nose ornaments[6]. The other sculptures of caves[7] I, IV, VII, XVI, XIX, XXIII, XXIV, XXVI also wear no ornaments on their noses The female figures on the sculptures of Ellora otherwise heavily ornamented do not wear any nose ornament, as seen on the person of the women in the *Kāilāśa* cave[8].

Even the women sculptured at Badami have no ornament on their noses[9]. Similar is the case with the figurines of *Bhuvaneśvara*[10] and *Koṇārka.*[11]

It is only when we reach the 17th century that we come across nose ornaments on the figurines representing females. The temple at Madura has the figures of 'le roi Tirumal et ses femmes' (1623–1659) and it is here almost for the first time that we come across nose-studs[12] on the female figures.

Seals, coins and plaques—On none of the seals of Mohenjodaro and Harappa where human figurines are depicted we see any nose

1. Cohn, W.—*La sculpture Hindoue* pl. 17.
2. Coomaraswamy—*History of Indian & Indonasian Art* pl. XXIII–141.
3. *Ibid*—pl. XXXII–136.
4. *Ibid*—pl XXXI–135.
5. *Ibid*—pl. XLIII–164.
6. Coomaraswamy—History of Indian & Indonasian Art pl. XLVI.
7. Kanhiya Lal Vakil—*Ajanta* pl. XIX, XXV, XXVI etc.
8. Cohn—*La sculpture Hindoue*—pl. 40.
9. *Ibid*—pl. 34.
10. *Ibid*—pl. 58, 59.
11. *Ibid*—pl. 63.
12. *Ibid*—pl. 107.

ornament[1], when we can see head and other ornaments on some of them as has been stated in the foregoing pages.

Similarly we do not come across any nose ornament on the gold plaque figurine of *Piprāvā* in the Lucknow Museum (pl. XLVIII). Here we come across ornamented fillet, heavy ear-rings, necklaces, bangles, girdles, and anklets, but no nose ornament. The plaque found from *Lauriyā* Nandangarh (one of which is illustrated by Coomaraswamy also) does not show any ornament on the nose of the figurine[2].

On the Kushan coins there are figurines on the reverse but they also do not have any nose ornament. *Ardokso*[3] has *Chūḍāmaṇi*, ear-rings, necklaces and armlets etc., but no nose ornament. *Manaohato*[4] has ear-rings, bangles, necklaces and anklets etc., but no nose ornament. Similar is the case with *Nanapao*.[5]

Even on Gupta coins[6] we do not come across nose ornaments on the several female figurines representing Lakshmi and the Queen on the reverse.

Bronzes—Of the two bronze figurines from Mohenjodaro one found by Mackay is badly corroded[7] but the one illustrated by Marshall after cleaning is in a satisfactory state of preservation and does not wear any nose ornament.[8]

The bronzes illustrated by Coomaraswamy, for example the *Apsarā*[9] of bronze of the 9th century A. D., the Uma[10] of Pala period,

1. Mackay—*F E. M* p. 386 etc. pl. XCVI-510, CIII-8, LXXXVIII-279 etc.; Marshall—*M. I. C.* I. p. 53, III-17, Vats *Excavations at Harappa* pl. XCIII-305, 307 etc.
2. Coomaraswamy—*History*-pl. XXX-105.
3. British Museum, *Cunningham* 6 XII-94.
4. ,, ,, *Chandmull* 10 XXXIV.
5. ,, ,, *B. M C* —23 N 75.
6. Allen, G.—*A Catalogue of Gupta Coins* pl. I Samudra Gupta; *Coomaraswamy—History of Indian & Indonasian Art* pl. XXX, fig. 129, 132.
7. Mackay—*Further Excavations at Mohenjodaro* p. 274; pl. LXXIII-10.
8. Marshall—*Mohenjodaro & the Indus Civilization* Vol. I p. 44, 345; pl. XCIV-7.
9. Coomaraswamy—*History of Indian & Indonasian Art* pl. CXIX-365.
10. *Ibid*—pl. LXXV-230.

the Umā[1] from South India of a later period, do not wear any nose ornaments. Similarly the Pārvatī of the Colombo Museum of the 11th & 12th century A. D. has no nose ornament.

It is only when we come to the Bronze figurines of the Queens of Krishṇa Deva Rāya (1509-1529) illustrated by Coomaraswamy[2] that we get some indications of studs on the nose of the *Rani*.

Paintings—The frescos of Ajanta cover a long period of our cultural history from the 1st to 6th century A. D. and exhibit a number of scenes. There are figures of women almost everywhere, for example in the paintings of *Shaddanta Jātaka*[3] the devotees with offerings for *Hāritī*[4], the mother and child[5], the Royal couple,[6] flying *Gañdharvās*[7], the Queen's toilet[8] but no where do we come across nose ornaments.

There are ear-rings, there are heavy tiaras, there are necklaces, there are girdles and anklets of various shapes and forms but no nose-stud, or nose-ring. The figurines in Sigiriya caves[9] of Ceylon, probably of the 5th century and showing technical similarities with *Ajanta* and *Ellora* have no nose ornament. Similarly we see no nose ornaments on the women of Badami cave.[10]

The Kailāśa temple paintings of Ellora[11] also do not have any female figurine wearing nose ornaments. Similar is the case with *Indra Sabhā* paintings.[12] Both the old and the new layers were examined but no trace of nose ornaments was found. In the Bāgh cave paintings none of the figurines wear any nose ornament.[13]

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1. Coomaraswamy—*History of Indian & Indonasian Art* pl. LXXVI-244; Cohn. w —*La Sculpture Hindoue* pl. 110.
2. Coomaraswamy—History of Indian & Indonasian Art pl XXVI-245.
3. Kramrisch, S.—*A Survey of Paintings in the Deccan* pl. Opp p. 10.
4. *Ibid*—pl. Opp. p. 64.
5. Kannhayalal Vakil—Ajanta-Front piece.
6. *Ibid*—pl I.
7. *Ibid*—pl. 1r.
8. *Ibid*—pl. V.
9. Coomaraswamy—*History of Indian & Indonasian Art*. p.
10. Kramrisch, S. *A Survey of Paintings in the Deccan* Opp p. 68.
11. *Ibid* – Opp. p. 80.
12. *Ibid*—Opp. p. 96.
13. Dey Mukul, C.—*My Piligrimage to Ajanta & Bagh*. pl. Opp. p. 236, 237.

It is only when we come to paintings in the old Travancore palace[1] in the temple of Padmanabham at Trivandrum[2] and in *Kalpa Sūtra* paintings reproduced by Goetz perhaps of the late 15th century that we first come across nose ornaments.[3] Similar paintings are reproduced by Coomaraswamy though perhaps of a little later date.[4] It is also found on the illustrations of *Bhāgavata Purāṇa* of Jodhpur[5] and on the nose of Sarasvati of Kirātārjuniya of Ekanātha Bhatta dated *samvata* 1639, (1583 A. D.)[6]. Afterwards they become common in Deccani,[7] Rajput[8] and Kangra[9] paintings.

We also see nose ornaments on Muslim women for example in the painting by Shapur depicting a dancing scene at the court of Md. Tuglak.[10] This clearly proves that the Muslim women wore nose ornaments.

Nose-drops also appear in *Vasanta Vilāsa* miniature paintings on the female figurines.[11] They are almost like our *bulāka.*

Literature—As far as can be ascertained no name of nose ornaments occurs in the Vedas. In *Kautilya's Arthaśāstra* we fail to find any reference to nose ornaments.[12] Similarly, we do not

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1. *Travancore Archæological Survey Report* 1934–35 pl. 2, 1, 3.
2. Tiruvānbadi shrine—*Ibid*-1935–36 Opp. p. 6 pl. I.
3. Goetz, H.—*Decline and Rebirth of Medieval Indian Art*—*Marg*-Vol. IV-2 10 (1950) Opp. p. 43.
4. Coomaraswamy—*Op Cit.* pl. LXXV–261.
5. *Citra Kalpadrum* (Baroda 1935) pl. C
6. *Manuscript 179.* B. O. L. *Inst* Poona—Gode. P. K. The Antiquity of the Hindu nose ornament called *nath. Annals of* the Bhandarkara Oriental Inst. July 1938 Vol. XIX. page 319.
7. Dr. Motichand—*Three Deccani Paintings on Canvass in the Prince of Wales Museum,* Bombay—*W. I A Journal* Vol. VII pl. I p. 114.
8. Goomaraswamy—*History* LXXIII–258, LXXXIV–26, LXXV–261.
9. *Ibid*—pl. XXXVIII–269 etc.
10. Chatterji, K. N.—The use of Nose ornament—*J. P. A. S. B.* Vol. XXIII–p. 290.
11. Dr. Motichand—*Jain Miniature Paintings from Western India* p. 127.
12. Chatterji, K. N.—The use of nose ornaments *J. P. A. S. B.* Vol. XXIII–p. 291.

find any nose ornament in *Aśvaghosha's* works[1] or in *Bharata Nāṭya.*[2] In the works of *Kālidāsa* we get references of head ornaments, necklaces, ear-rings, armlets, bracelets, girdles and anklets but none of nose ornaments.[3] Even when Kālidāsa describes in detail the ornaments of *Pārvati* in *Kumāra Sambhava* he does not mention nose studs.[4] Sir Jogesh Chand Roy Vidyanidhi says that he has failed to find any name of nose ornament in Sanskrit literature.[5] Similarly Mr. Divatia says "we find no mention of nose ring in Sanskrit literature, lexicon included." It can thus be safely asserted that this ornament is unknown to ancient Sanskrit literature.[6]

It does not occur in *Dholā Mārū rā dūhā* a 10 or 11th century work of Rajasthan, nor does it find a place in *Prithvirāja Rāso.*[7] In both these works we get references of ornaments worn by the heroines.

The earliest definite reference to nose ornament we get, is in a Jaina book *Hiravijaya Sūri Rāsa* XXVI–9. (*Phādi nāka pirove nātha*) and this work is not older than late 16th or early seventeenth century as Sūri lived in the latter part of Akbar's reign. On him the Great Moghul conferred the title of Jagad Gurū.[8] The early literary references quoted by Dr. Gode[9] for nose ornaments contain composite words like *nasānguri, nāsāgra mauktika (nāsāgre nava mauktikam)* etc.[10] These in their context appear to lay more emphasis on the shine of the nose-tip comparable to the pearl than the nose ornament. It is not understandable as to why these writers do not mention the definite words like *natha, bulaka* or *besara* if they were current when they employ *keyūra, kankana, kundala, mekhalā* etc.

1. List with references—*Appendix*
2. *Bharata Nāṭya Śāstra* ch. XXIII–12 6?
3. B. S. Upadhya—*India in Kalidasa*—p. 202.
4. *Kālidāsa Granthāvalī—Kumāra Sambhava* ch. VII p. 256–266 (Akhila Bhārtīya Vikrama Parisada—2nd Ed. 2007 V. S.).
5. Jogesh Ch. Roy—*Prabāsī* Vol. 27 part 2 No. 1.
6. Divatia, N. B.—The Nose Ring—*J. P. A. S. B.* XIX 1923 p. 67.
7. Both published by *Nāgrī Prachāriṇī Sabhā* Penares.
8. Panikar, K. M.—*A Survey of Indian History* p. 191.
9. Gode, P. K.—*The Antiquity of the Hindu Nose Ornament called Natha—Annals of Bhandarkara Inst* July 1938, Vol. XIX—p. 317–318.
10. *Ibid*—p. 331.

to denote the various definite ornaments. Only in *Saṁgraha cuḍāmaṇi* of Govindācārya of 1750 A. D. we come across the words *nāsikā bhūṣaṇa.*[1] However in the absence of authentic original manuscripts of these works it cannot be said with certainty as to how much of the text of these books was written initially by the authors themselves and how much was added to it later by the teachers, disciples and the copyists. One is thus led to agree with Dr. Altekar that no nose ornaments were worn by the women in Ancient India and the word *natha* is of foreign origin.[2]

In the world literature the first reference we come across regarding nose ornament is in the Bible. Among the presents given by Abraham's servant to Rebekah we come across rings (Gen. XXIV, 22 french Tr.) and the same servant puts the ring on the face of Rebekah (Gen. XXIV, 47) etc. Perhaps the name of the nose ornament in Hebrew was *Nezem* with which French word nez' for nose appears to have some connection. In an article by R. P. Umrigar we come across nose rings among a Hebrew lady's ornaments.[3] As it was an ornament in use among the ancient Hebrews, it is not surprising that we first come across a reference of it in the Bible.

The five words in general use in India for nose ornaments, with local and provincial variations are, *Natha* and *Besara* for nose-rings, *Bulāka* for nose pendants, *Bāli* for the simple ring and *Phūla* for nose studs. The word *natha* seems to have been derived from the Arabic word '*nataf*' which means ring. '*Natafāt*' means rings.[4] It appears that the last letter of *nataf* the '*fe*' was dropped and the word became *Natha* which was later sanskritised as *Natham.*[5] The word *Besara* was in all probability derived from the Arabic word '*Busarat*' which means an ornament of glass beads,[6] while '*Bulāka*' is a Turkish word which means a fall of water, and also

1. Govindācārya—*Saṁgraha cūḍāmaṇi*—Adyar 1939.
2. Dr. A. S. Altikar—*Dress and ornaments of Hindu Women—Journal of the Benares Hindu University* Vol. II 1938 p. 420–422.
3. Umrigar, R. P.—The dress of Ardivisura and the toilette of the Hebrew Lady *Dastoor Hoshang Memorial* p. 95.
4. Richardson Dr.—*A Dictionary Persian, Arabic and English* (J. L. Cox-Great Qweens St. Lond.) p. 1585, Col. 1.
5. Hemchandra—*Desināma Mālā* IV-17.
6. Richardson—*A Dictionary etc.* p. 272 col. 1.

natha.[1] Divatia quoting two lexicons—*Gayāsul Lugat* and *Aśaful Lugat* says that the word *Bulāka* is of Turkish origin and means a nose pendant,[2] a sense in which the word is employed today. *Bāli* looks to have its origin in the Persian word '*Bāl*', which denotes an ornament hung to a fillet.[3] Nose rings when they are big are often hung to the fillet (*Bandi*) even today and thus the word may have been used in its original sense to denote nose ornament. The word *Phūla* is a *Prākṛta* word and seems to have been derived from *Puṣpa*, perhaps to denote the flower-like form of the nose-stud tops. There is, however, no Sanskrit name for nose ornament; all the above mentioned words are of foreign origin. In *Śabda Kalpadrum* Raja Rādhākānta reproduces certain couplets from *Kalpataru*[4] which describe the various ornaments of the body and the moment when they should be put on. Here also we do not get any reference of nose ornaments.

In fact the first or the earliest archaeological evidence of nose ornament we get is on an Egyptian cat probably a religious deity, in the British Museum. It wears a gold ring through its septum and is dated 350 B. C. It is just possible that the custom of wearing nose ornaments may have spread from Egypt, and may have first reached Palestine from where it came to India with the Arabs.

Religious Ceremonies & Customs—We do not get any reference of nose piercing ceremony in *Gṛhya Sūtrās* which describe in detail the various *Saṁskārās* of Hindus from their birth to death. These *Sūtrās* are supposed to be contemporaneous with some of the ancient hymns of *Ṛgveda* in substance.[6] Most of the ceremonies in their modified form are still observed by Hindus, for example *Jāta Karma*, *Nāma Karana*, *Yagñopavita*, *Vidyārambha*, *Samāvartan*, *Vivāh*, *Dvirāgaman*, *Mṛtaka Karma*, while some of the ceremonies like *Punṣavan* etc., have disappeared. We do not come across nose piercing in these *saṁskārās* and it is performed among, Hindus today without any function.

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1. Molvi Tassaduk Hussain Rizvi—*Lugat Kishvarī* (1923) Naval-Kishore Press, Lucknow p. 72.
2. Divatia—The nose ring—*J. P. A. S. B.* (n. s.) Vol. XIX p. 68, 69.
3. Richardson—*op. cit.* p. 236. col. 2.
4. Radhakant, R. B. Sir—*Śabdakalpadrum* p. 114.
5. British Museum—No. 6439.
6. Oldenberg, Herman—*The Grihya Sūtra*—Introduction p. 1.

The fascination of Indians for ornaments was observed by the Greeks and Strabo remarks[1] "in contrast to their parsimony in other things they indulge in ornaments..." but he also does not mention about nose ornaments.

Yuan-Chwang who describes[2] in detail the dress and ornaments of Indians does not say that they wore nose ornaments when he mentions about their custom of piercing the ears. Captain John Butler describing the dress and ornaments of Āgami Nāgā women, an aboriginal tribe of India, says[3] that "in their ears the young girls wear a peculiar pendant of circular bits of shell ; necklace of all kinds of glass, carnelian, shell, seeds and stones ; on their wrists they wear thick heavy bracelets, armlets of brass and a metal which looks like pewter. Here also we do not get any nose ornament nor do we see it on the figures illustrated by him [4] Hendley describing the women of Marwar Bhils[5] says that their hair is plaited in squares and is covered with small globular grape-like ornaments, and on their arms and legs they wear lac and glass churies etc. He also does not mention that Marwar Bhil women wear nose studs or nose-rings.

Chatterji, quoting S. C. Roy and A. K. Ayer, says that neither the Kichi tribe nor the Birhors use any nose ornaments.[6] Thus we can presume that the custom of wearing nose ornaments was not ancient otherwise the tribes of India would have kept it up. At present, however, it is in vogue all over India and is considered a sign of marital bliss. A widow generally does not wear any nose ornament.

K. N. Chatterji quotes from the custom of the Russian Empire (1803) that some of the Tartar tribes like Nogai pass through their nostrils a ring loaded with pearls and valuable stones which descend as low as the mouth. It is not uncommon among the females of Astrakhans and is generally worn by those on the borders of Akh-

1. Strabo—*Geography* XV–1, 54.
2. *Yuan-Chwang*, I p. 151, Ip. 76.
3. Captain John Butler–Rough notes on Agami Nagas etc *J. A. S. B.* Part I No. IV—1875 p. 327.
4. Captain John Butler—*Rough notes on the Agāmi Nāgā op. Cit.* pl. XXI–4
5. Hendley, J. H.—Marwar Bhils–*J. A. S. B.* Part I No. IV–1875 p. 355.
6. Chattarji, K. N.—The use of nose ornaments, *J. P. A. S. B.* Vol. XXIII p. 291.

touba near Persia.[1] Tavernier says in his Persian Travels 'The Arabian women bore the separation between the two nostrils where they wear hollow rings.[2] It is just possible that Taimur who captured a number of women during his exepition of those regions may have brought them to his capital. They may have introduced this fashion among the Persians. Hanway writes in the accounts of his travels that persian women wore nose-ornaments.[3] Būlāka and Besara are both foreign words and may have come to India along with the ornaments.

From the evidence here we can presume that during the reign of Jahangir when we come across ear-rings on the ears of men for the first time in Moghal paintings the nose ornaments were widely introduced in north India. Edward Terry who visited India during 1616-1619 says about the muslim women that they wore nose ornaments.[4] Sculptures, literature and paintings all lead us to this conclusion. It is not unreasonable to suppose that during the comparatively peaceful reign of Akbar and Jahangir, when a number of families migrated from Persia and Central Asia to India,[5] the Muslim women may have introduced the fashion of wearing nose ornaments in north India among Indian women, Hindu and Muslim. In the south and west the Arab contacts may have introduced the nose ornaments between the 11th centuries A. D.

Thus it is not quite justifiable to classify some of the studs found at Mohenjodaro and Harappa as nose studs on the presumption that nose studs were in use in Ancient India, when there is little or no evidence to prove it.

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1. *Ibid*—p. 290
2. Tavernier, Jean Baptiste—*Persian Travels* p. 86; *Cambridge History of India* Vol. V. p. 62.
3. Hanway—*Travels in Persia* Vol. I. p. 230.
4. Edward Terry—*Early Travels in India* p. 308–309.
5. Panikar, K. M —*A Survey of Indian History* p. 192.

CHAPTER IV

NECK & BREAST ORNAMENTS

When we come to neck ornaments of the Indus Valley Civilization, we get comparatively sufficient materials to work upon, as the most important component part of the necklace, the bead, has been found at almost all the levels. The hoards found in different places give us an inkling into the manner in which the beads were arranged and threaded, but beads unlike the clay bangles do not record change of fashions too frequently except in case of paste ones. Even today we find that the pearl necklaces of our grandmother's days are still in fashion and have not undergone any change though they are threaded and worn a little differently today than they were fifty years back.

Most of the necklaces we come across in the Indus Valley Civilization are composed of beads but necklaces made of strips of metal must have also been in use as quite a few of these appear on the necks of clay figurines.[1]

The Quetta Culture—The recent expedition in the Quetta area has brought to light some material of the comparatively earlier phases of the Indian Protohistoric civilization. From the Damb-Sadat site along with alabaster cups, bone spatula, chalcedony and flint scrapers, were found necklace beads and amulets.[2] From all the three levels beads have been found but unfortunately we have, so far, no details of them. Polished stamps seals of steatite, perhaps punctured for suspension to the neck as amulets were also found at Damb-Sadat level.[3]

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1. Vats—*Excavations at Harappa* Vol II pl. LXXVI–21; Marshall—*Mohenjodaro and the Indus Civilization* Vol III pl XCIV–14; Mackay—*Further Excavations at Mohenjodaro* Vol II pl. LXXV–1.
2. Fairservis—*American Museum Noviates* p. 13.
3. *Ibid*—p. 31.

The clay figurines found at the lower levels of Quetta I culture are illustrated here on figures 'e' and 'f' [pl. 1]. These figurines have red paint on their necklaces, perhaps to suggest the colour of gold. The necklaces on the neck of figurine 'e' are composed of metallic strips ornamented with dots. They cover a large part of the shoulders. The necklaces on the figurine 'f' are also composed of metallic strips ornamented with dots. Over the necklaces this figurine wears another band with ends which curve outwards, perhaps to keep the various necklaces in place not unlike the ornament worn by the later clay figurine illustrated by Coomaraswami[1] and also seen on Besnager *Yakṣī*[2] and at *Bhārhut*[3] known as *Channavīra* in latet Sanskrit.[4]

Of the figurines 'a' and 'b' of *Damb-Sadat* level, figurine 'a' has no necklace on the neck but on the neck of fiurine 'b' we see seven necklaces of metal-strips. They appear to be plain and do not have any ornamentation on them. From the *Deh Morasi*[5] level belonging to Quetta II Culture the figurines found are illustrated [pl. 1 figs (c) and (d)]. As only the head of figure 'd' was found we cannot say what type of necklaces were there on her person. On the neck of figurine 'c' we observe seven necklaces of metal-strips, the last one having a round bead pendant.

We can thus say that necklaces up to seven in number used to be worn on the neck during this period and these were mostly composed of strips of metal. Number seven is rather important because we come across later days a necklace composed of seven strings known as *Satlarā* in *Hindī.*

Amri-Nal Culture—From the upper levels of Amri, N. G. Majumdar has recovered necklace beads[6] of green felspar, cylindrical hexagonal in shape, ·6" in length and ·4" in width at their maximum, and steatite beads of discoid shape with a diameter of 5". From the lower levels only biconical terracotta beads have

1. Coomaraswami—Archaic Indian Terracottas, *Marg.* Vol. IV–No. 2, 1952 p. 24 fig. 1.
2. *Ibid—History of Indian & Indonasian Art.* pl. III fig. 8.
3. Cunningham—*Stupa of Bhārhut* pl. XXXVI–8
4. Rao—*Elements of Hindu Iconography* Vol. I p. XXXI.
5. Fairservice—*American Museum Noviates* p. 23.
6. Majumdar—*Explorations in Sind–Arch. Surv. of India Memoirs*–48 p. 33.

been found.[1] They appear to belong to the earliest phase of this culture, and it is possible that they may have been worn on the neck, as they have incised decoration on them and appear to have been painted. At Ghazi Shah, Shri Majumdar found discoid beads of steatite[2] ·5″, ·45″, ·4″ and ·35″ in diameter [pl. II fig. (c)].

From Ghazi Shah, he has also found carnelian cylindrical beads[3] of ·6″ length and round flat beads[4] with a diameter of ·25″. A semi-opal bead of short barrel shape ·3″ in length was also discovered[5] along with a fragment of an agate bead[6] long barrel in shape 1″ in length. A copper bead cylindrical in shape found at Ghazi Shah in illustrated on fig. 'g' [pl. II]. Its length is ·25″.[7] Terracatta beads were also found. One[8] which he especially mentions has ribbed body and is long barrelled in shape. Its length is ·85″. From Pandi Wahi he discovered steatite bead[9] discoid in shape, ·35″ in diameter [pl. II fig. (p)]. Lapis lazuli beads cylindrical in shāpe[10] with a length of ·7″ and diameter at ends of ·35″ were also found by him. Two unfinished white stone beads[11] were also found by him along with these, which lead us to believe that such beads used to be manufactured locally at Pandi Wahi. Terracotta beads with incised decoration,[12] varying in length from ·85″ and ·9″ were unearthed here. From Ali Murad also long barelled shape Carnelian beads[13] ranging from 2·5″ to 1·25″ were found. A steatite bead[14] of discoid shape of ·5″ diameter, an agate bead[15] of barrel shape

1. *Ibid*—p. 102 pl XXXIII–31.
2. *Ibid*—p. 32 pl. XVII–13.
3. *Ibid*—p. 103 pl. XXXIII–39.
4. *Ibid*—p. 103 pl. XXXIII–33.
5. *Ibid*—p. 103 pl. XXXIII–32.
6. *Ibid*—p. 103 pl. XXXIII–46.
7. *Ibid*—p. 103 pl. XXXIII–34.
8. *Ibid*—p. 103 pl XXXIII–40.
9. *Ibid*—p. 113 pl. XXXIII–37.
10. *Ibid*—p. 113 pl. XXXIII–43.
11. *Ibid*—p. 113 pl. XXXIII–41, 42.
12. Majumdar—Exploration in Śind, *Memoirs 48* p. 113 pl. XXXIII –35, 36.
13. *Ibid*—p. 108 pl. XXXIII–66, 67, 68.
14. *Ibid*—p. 107 pl. XXXIII–57.
15. *Ibid*—p. 107 pl. XXXIII–65.

with bands of chocolate on white background, 1·82" in length, and a copper bead[1] spherical in shape ·3" in diameter were among the other finds. Terracotta coloured beads[2] of long barelled shape with a length of 2·2" were also discovered.

The Terracotta beads were perhaps used by Amri people for girdles and the stone beads for necklaces though it is possible that in the beginning painted terracotta beads were being used for necklaces.

The beads found at Nundara by Sir Aurel Stein, however, have not been described by him in detail.[3]

From Nal Hargreaves was able to recover a number of beads[4] some of which are illustrated here [pl. III.]. Including the sixteen bone discs, the total number was probably 322, but most of them were found scattered in different places. The commonest bead discovered here is biconical in form, the largest being 60 mm. in length. Similar beads of biconical shape have been found in Deccan[5] also. The most striking is the irregular hexagonal flattish specimen of pale yellow agate[6] with a major axis of 36 mm. and minor one of 23 mm. This form is also seen in paste and lapis lazuli. Beads of lapis lazuli of this form used to be built up in two pieces, being half of a complete bead cut along the minor axis, perhaps due to the difficulty of obtaining large pieces of this stone.[7] These long beads were generally bored from both sides. In some cases the point of juncture in the hole is well marked. As specimens of unpierced beads of lapis lazuli have been found it can not be said that they used to be imported ready made.

In one of the graves Hargreaves found 16 disc-shaped beads of bone of a diameter approximating 29 mm.[8] These beads have

1. *Ibid*—p. 107 pl. XXXIII-58
2. *Ibid*—p 107 pl XXXIII-59, 60
3. Sir Aurel Stein—Archæological Tour in Gedrosia Arch. Surv. of India, *Memoirs* 43 p. 138-144.
4. Hargreaves—Excavations in Bhaluchistan, Arch. Surv. of India *Memoirs* 35 p. 42, 43.
5. Foote Bruce—*Catalogue of Pre-Historic Antiquities Madras Govt. Museum* pl. XIII-829.
6. Hargreaves—*Excavations in Baluchistan, Memoirs* 35 p. 34 pl. XV (a).
7. *Ibid*—p. 34.
8. *Ibid*—p. 42.

holes in the centre and have three parallel circular grooves near the rim. They are evidently parts of a necklace. Two small shell beads[1] were found in room F-6. One is round and the other oblong. The round one has a diameter of 9 mm., while the oblong bead has a central diameter of 10 mm. [pl. III figs. (j) and (j')]. Both have holes for threading. Another broken shell bead was found with holes closely parallel to the rim. It is most probably a spacer.[2] A rough barrel shaped[3] marble bead with a diameter of 23 mm. has also been recovered [pl, III fig. (k)]. Fifteen beads,[4] perhaps parts of a necklace were found in the grave of a woman. Of these three are of carnelian, ten of agate, biconical in shape, one of unpolished stone and one a barrel shaped lime-stone bead which may have been used as a centre-piece [pl. III fig. (d)]. Fourteen beads of carnelian, six of paste, and two of agate flat hexagonal, formed perhaps another necklace.[5] Of these six paste beads, two have still their original greenish blue colour [pl. III fig (e)]. Twenty six graduated biconical beads and a barrel shaped agate bead appear to have constituted another necklace,[6] [pl. III fig. (g)]. Twelve biconical and three bihexagonal carnelian beads found by Hargreaves[7] are probably parts of an entirely carnelian necklace [pl. III fig. (c)]. Seven flat hexagonal agate beads, seven small flat carnelian beads and three beads of lapis lazuli of irregular hexagonal shape constitute in all probability another necklace,[8] [pl. III fig. (1)]. Sixty lapis lazuli beads 59 of which are cylindrical hexagonal and one flat hexagonal, perhaps formed another necklace,[9] [pl. III fig. (h)]. From the grave no. A 13 of an infant Hargreaves[10] found fourteen beads and a pear-shaped pendant [pl. III fig. (b)]. Of the fourteen beads, ten are barrel-shaped white agate beads with grey ends, one is without grey ends, two of agate are biconical in shape and one of carnelian is hexagonal. The pendant is of crystal. The shape of the

1. *Ibid*—p. 43.
2. *Ibid*—p 34.
3. *Ibid*—p. 43.
4. *Ibid*—p. 43 pl. XV a–A2.
5. Hargreaves—p. 43 pl. XV a–A4.
6. *Ibid*—p. 43 pl. XV a–G7.
7. *Ibid*—p. 43 pl. XV a-G8.
8. *Ibid*—p. 43 pl. XV a-G9.
9. *Ibid*—p. 43 pl. XV a–G11.
10. *Ibid*—p. 28 pl. XV a–E12.

pendant is exactly similar to the pendants of precious stones still used in India.

89 discoid beads of paste were recovered by Hargreaves from near the head of a body of an infant.[1] They may also have formed part of a necklace.

A much corroded copper piece in which a tiny part of a thread was found preserved appears to be the remains of a copper bead.[2] This is the only example of a copper bead from Nal, but the presence of cotton thread clearly shows that beads used to be threaded in cotton thread. Similar cotton threads were found preserved in copper beads at Mohenjodaro.[3]

A copper piece was also found in one of the graves here.[4] It is roughly circular in shape with six projections and a circular depression in the middle [pl. III fig. (n)]. On its reverse there is a lug with a hole. The piece measures 29 mm. in diameter. It is described as a seal by Hargreaves but it appears to be the pendant of a necklace and is not very much unlike those found at Shahi Tump.[5] The terracotta figure found at Nal, unfortunately wears no necklace.[6] [pl. III fig. (o)].

From Dumb Buthi, a site which equates with Nal[7] N. G. Majumdar was able to recover shell beads rectangular in shape, each about ·8" long ·55" broad and ·25" thick. They are perforated with two holes and bear incised circles and dots.[8]

From these finds it can safely be presumed that the Nal people had relations with Persia and Afganistan from where they got their supply of lapis lazuli, carnelian and agate. Here we get the earliest bead material that is bone as well as the latest that is paste. From the beads of Nal we can safely determine three phases of culture, one represented by bone beads, another by carnelian and agate beads and the third by paste beads, and the copper pendant. From

1. *Ibid*—p. 43 pl. XV a-E 13.
2. Hargreaves—*Ibid*—p. 33, pl. XV a-E 13.
3. Mackay—*Further Excavations* p. 591.
4. Hargreaves—*Ibid*—pl. XV a-(d).
5. Sir Aurel Stein—*Memoirs 43* pl. XIV-Ss-T. VI-9.
6. Hargreaves—*Op. Cit.* pl. XXI-19.
7. Majumdar, N. G.—*Op. Cit.* p. 116, 117.
8. *Ibid*—p. 120-Dm (a), (b), (c), (d), (e).

the painted terracotta bead of Armi to the sophisticated beads of carnelian and pendants of crystal there appear several stages of development which can be divided under four phases, three of Nal and one of Amri.

Zhob-Culture—From the Zhob Valley sites of Sur-jangal, Periano Ghundai, Dabarkot, Moghul Ghundai, and Kundani a number of different varieties of beads have been found. They are evidently parts of necklaces.

From Periano Ghundai several stone beads[1] have been found among which are beads of black stone, one of chalcedony and one of jade [2] A blue glass bead was found too near the surface to have any archæological importance.[3] Tiny shell discs with perforations were also found here [pl. IV fig. (k)]. From Kundani among other beads a beautiful inlaid bead of paste was found by Sir Aurel Stein which evidently belongs to Mohenjodaro Culture. [pl. IV fig. (j)].

From Dabarkot beads of stones, glass, coral and paste were found.[4] It is strange that a bead of coral was found at Dabarkot but not at other places. A little perforated disc of silver, evidently a centrepiece of a necklace was also found here.[5] Except the stone beads, the others belong to the later Mohenjodaro culture. The glass beads have no connection with this culture. At Sur Jangal also a number of stone beads[6] were found by Sir Aurel Stein who suggests that this was the traditional stone workers' place of prehistoric India. A copper bead was also found here.[7]

At Moghul Ghundai a jade bead, a chalcedony bead and a bead of carnelian inlaid with white paste like the etched beads of Mohenjodaro were among the several stone beads which were found. This carnelian bead evidently belongs to a later date.[8] The figurines found from Zhob Valley sites wear two types of neck ornaments. [pl. V]. On some figurines we find a flat neck plate and on the others necklaces. The necklaces appear on

1. Sir Aurel Stein—*Arch. Surv. of Indi. Memoirs 37* p. 38-40.
2. *Ibid*—p. 41.
3. *Ibid*—p. 38 p. w. 25
4. *Ibid*—p. 61.
5. *Ibid*—pl. XVI-D. E.
6. *Ibid*—p. 73.
7. *Ibid*—p. 63 Sj. VII-29.
8. *Ibid*—pl. XII-M. N. W. 2,

figurine 'a' and also on figurine 'e'. It appears that four to five necklaces used to be worn by the women of Zhob valley. The last necklace often had pendants as we see on figurines 'e' and 'f'. The pendant of the neclace of figurine 'e' is round and is attached to the last necklace. The neck plates perhaps used to be made of metal strips A beautiful plate is seen on figure 'd' ornamented with dots. On figures 'b' and 'c' also neck plates are seen instead of necklaces They seem to be composed of metal strips. A stone bead found at Dabarkot[1] has round holes below the neck suggesting that round bead chokers were also in fashion. This piece however, appears to be of a later date

Kulli-Mehi Culture—At Kulli rooms ranging from 12′ by 8′ to 8′ by 8′ were unearthed by Sir Aurel Stein.[2] Inside the jar[3] no. 1 he discovered elongated beads of stone measuring on an average 1″ in length evidently a part of a necklace. Out of these one is of agate pink in colour, the rest are of black stone, perhaps onyx. This jar was found in the kitchen buried underneath the earth, a circumstance which is quite common in India. Even now village folks bury their precious articles and money underneath the earth in their kitchen.

From Mehi along with other objects was found a bone pendant, [pl. VII fig. (h)]. It is very much like the pendant seen on the clay figurine [pl. VI-fig. (g)]. It is decorated with four sets of circles three in each division and fourth in the centre This piece resembles the one, probably of a later date, found by Bruce Foote in Madura district and described by him as a carved bone pendant.[4] The clay figurines found[5] at Kulli and Mehi wear a number of necklaces and chokers. On figures 'b', 'c' and 'g' [pl. VII] the figurines wear incised metal strip chokers, while on fig. 'a', 'b', 'e' and 'f' there are chokers composed of large spherical beads. Similar chokers are seen on the necks of the clay figurines illustrated by Prof. Frankfort and described as belonging to the period of Abraham about 2000

1. Sir Aurel Stein—pl. XVI-Dn. Vi-3 p 61
2. Sir Aurel Stein—*Arch Surv. of India Memoirs 43* p. 124.
3. *Ibid*—pl. XXV-VIII-2.
4. Robert Bruce Foote—*Collection of Pre-historic and Proto-historic Antiquities* etc. p. 4 No. 74.
5. Sir Aurel Stein—*Archæological Tour in Gedrosia Memoirs 43.* p. 161 pl. XXXI—III, 6, 17 ; III-4, 10 ; III-6. 17 , III-5, 3 ; pl. XXII-Kv, VII-3 etc.

B. C.[1] Below the chokers there are the necklaces. They are also of several designs. There are necklaces composed of decorated metal strips each with one round pendant, and then, there are necklaces composed of incised strips of metal each with several long pendants. Generally two to three necklaces were worn on the neck by the women of this level of culture, [pl. VII]. They ordinarily consisted of decorated strips of metal with pendants of spherical or cylindrical beads threaded to the holes in the strips. In several cases disc pendants are also seen, [pl. VII figs. (e), (d), (f) and (i) and pl VI-fig. (g)]. One disc pendant has actually been found at Mehi which[2] resembles this ornament on the breast of the figurine.

Harappa Culture—From Harappa a number of scattered beads have been recovered but necklaces of beads have also been found in the hoards discovered by Vats.[3] They are beautiful pieces and record a high level of culture.

On [fig. (a) pl. X] we have a necklace[4] with thirteen pendants, four long faceted beads of gold, two cylindrical beads used as terminals and eight beads of agate, with 29 cylindrical beads of burnt steatite. The composite pendants (i), (ii), (iii) consist of beads of green jasper at the top with tips of tubular burnt steatite beads having gold ends followed by cylindrical gold beads and discs of gold. The two gold discs at the end of each pendant have disc-shaped steatite beads in between. These pendants composed of several beads are held together with a copper wire looped at the end and slightly twisted at the lower end. The other composite pendants are similarly constructed except that in their case the main bead is of green jade. The colour combination of these pendants is really remarkable.

On figure 'b' [plate x] we have a similar necklace[5] with thirteen pendants. It has seven oval beads of blue faience of which six have gold caps at both ends, 26 cylindrical beads of the same materials with gold ends, three beads of agate, two of hæmatite and two

1. Frankfort—*Finds from Schalt, Tell Asmer and Khafaje, I.L.N.* Sept. 5, 1936 p. 388 fig. 3.
2. Sir Aurel Stien—An Archæological Tour in Gedrosia, *Arch. Surv. of India Memoirs 43* pl. XXXI-Mehi III, 6, 18.
3. Vats—*Excavations at Harappa* Vol. I, p. 65.
4. Vats—*Excavations at Harappa* pl. CXXXVII-9,
5. *Ibid*—pl. CXXVII-10.

cylindrical beads of gold at the ends like those seen on the necklace on figure 'a'.

On fig 'c' [Plate X] we have a third necklace[1] with the same number of pendants. It has, however, 8 oval beads of burnt steatite with gold ends and 26 cylindrical beads of the same material also with gold ends. At the ends of these pendants there are cylindrical beads of gold, a feature common in all the pendants of necklaces on this plate viz. (a), (b), (c), & (d).

On fig. 'd' [Plate X] there is another necklace[2] of the same class with 9 oval beads of faience one of which, however, has one gold end. On fig. 'e' [Plate X] the necklace has only seven pendants with beads of haematite, steatite and agate[3].

Numbers 13 and 7 of the pendants are significant as the same number of pendants are employed in threading *satlarā* a necklace of seven strings worn in India till lately.

Apart from these, a necklace consisting of round gold beads was also found[4] [Pl. VIII-fig. (p)]. There are in all 240 beads in this piece with two terminals and four spacers. The terminals have four holes each at the base and one rather wide at the top to take the binding thread. Semi-circular in design, the terminals look quite modern in their setting. Two other smaller pieces composed of round gold beads[5] described by Vats as bracelets were also found along with this necklace [pl. VIII fig. (e)]. Perhaps Vats arrives at this conclusion on the basis of modern bracelets of round gold heads, but the terminals here suggest that they are necklaces rather than bracelets, for if they were worn on the wrists the terminals would not fit each other. There will be a gap between the two pieces. The modern terminals of such pieces for this reason are straight and not semi-circular. Here, there are 69 beads and two terminals which are arranged in three rows each. Perhaps they are necklaces of small girls.

On figure 'j' [Plate VIII] we have a string of 27 small round and long beads of gold of various shapes arranged haphazardly by Vats[6].

1. Vats—*Excavations at Harappa* pl. CXXXVII–11.
2. *Ibid*—pl. CXXXVII–12.
3. *Ibid*—pl. CXXXVII–13.
4. *Ibid*—pl, CXXXVII–7 p. 64.
5. *Ibid*—pl. CXXXVII–3.
6. Vats—*Excavations at Harappa.* pl. CXXXVII–18.

On figure 'k' we have a string[1] with two tips of pendant beads of steatite having gold ends and eight tubular beads of steatite of which two have gold ends. On figure 'i' we have a string of eight barrel-shaped green jade beads and 26 disc-shaped beads of gold arranged in the line[2].

Three necklaces of carnelian were also found in this hoard. They consist of 'a' 68 round beads, 'b' 35 discoid beads lentoid in section and 'c' 19 flat and other type of beads[3]. Of the other pieces are (a) two strings of burnt steatite beads[4] oval, barrel and cylindrical in shape, some with gold ends, (b) two strings of faience beads[5] discoid in shape and (c) one string of 155 shell beads lentoid cylindrical in shape[6].

Beads of Harappa—The beads found from different sites and levels at Harappa are of numerous varieties and types. We find beads of gold, silver, and copper. Among the beads of gold there are round ones, [fig. 'a' Plate XII]. the short barrel-shaped fig 'b', hollow disc beads made by soldering together two convex discs, fig. 'e', hexagonal barrel-shaped fig. 'g' and cylindrical beads, fig. 'b' which appear to have been cast in small moulds. Of the silver beads we get only the globular type as we have seen on fig. 'h' which also appears to have been moulded. The copper beads are of cylindrical variety, vz. fig. 'f'.

Beads of faience appear to have been quite popular in Harappa as they were in Egypt. Globular fig.'x' tubular fig.'w', oval, rectangular cylindrical, disc-shaped, fig. 'z-10' and segmented beads, figs. 'q', 'r', 's' and 't' of this material have been found. They are of white, blue, yellow and black colours[7]. There are faience beads with brown strips [figs. 'y', 'z'] and coloured beads of faience to imitate agate on fig.'u'. The segmented beads consist of two, three, four and five segments [pl. XII-figs. (q). (r), (s), & (t)]. Such segmented beads appear to belong to later phases. Similar segmented beads have been found in

1. *Ibid*—pl.CXXXVII-19.
2. *Ibid*—pl. CXXXVII-17.
3. *Ibid*—pl. 65.
4. *Ibid*—pl. CXXXVII-27.
5. *Ibid*—pl. CXXXVII-21.
6. *Ibid*—pl. CXXXVII-25.
7. Vats—*Excavations at Harappa* pl. CXXXII, p. 404-405.

Crete and Egypt in middle Minoan III and XVIII Dynasty[1], in Syria from Tell Brak of Jamdat Nasr level[2] in Hissar II-a[3] and Hissar III-a levels[4] and in Shah Tepe[5]. The segmented beads found at the lower level of Hissar have only three compartments, while those at the higher levels have several. Thus we can conclude that the beads with two compartments fig. 'z' [pl. XII] found at Harappa perhaps belong to an earlier period than those with three and five compartments [pl. XII fig. (y)]. Beads with three compartments equate with those of Hissar II-as mentioned above. Similar beads have been found in Wiltshire (England) and also at Knossos where they are regarded to be of 1900 B.C.[6]. These beads originating from India perhaps travelled to Persia, Syria, Crete, Egypt, and thence to Europe.

Several fluted beads of faience cylindrical in shape have also been found [pl. XII fig. (z-11)]. Along with these are cylindrical beads with three bands[7], short barrel shaped oval in section and tubular beads ranging from thin tubes to fairly large ones[8]. A piece of a hexagonal bead of faience found by Vats is also illustrated by him[9]. A gardooned bead of the shape of a melon in faience appears on figure 'v' [pl. XII] and a bead with two concentric circles and a dot is illustrated by Vats[10].

Steatite which was another common bead material along with faience accounts for a number of beads of different shapes. One hundred eighteen of them were found by Wheeler mostly of thin circular disc shape[11]. Vats has found similar beads of a thicker variety. It appears that the thicker variety is of an earlier date than the thinner one[12]. Barrel-shaped beads[13] of burnt steatite were found in quite a large number by Vats, some of them painted with a red

1. M E.L Mallowan–*Iraq*–IX, 254, 255.
2. Beck—Beads from Nineveh–*Antiquity* Vol. V Dec. 1931, p. 439.
3. Schemidt—*Excavations at Tepe Hissar* pl. XXXIII–17 (three division)
4. *Ibid*—pl. XXXIII–18.
5. Arne—*Shah Tepe* pl. LXVI.
6. Wheeler—*The Indus Civilization* p. 74, 75.
7. Vats—*Excavations at Haraqpa* pl. CXXXII–b, c–8.
8. *Ibid*—p. 433.
9. *Ibid*—Vol. II pl. CXXVIII–3.
10. *Ibid*—Vol. II. pl. CXXXIII–9 m.
11. Wheeler—Harappa–*Ancient India No. 3* (Jan. 1947) p. 121.
12. Vats—*Excavations at Harappa* pl. CXXXIII–1.
13. *Ibid*—pl. CXXXIII–2 'i', 'j'.

pigment. Other beads of steatite with trefoil designs cut on them by a drill and the backgound recessed for being filled with red pigment leaving the white outline in relief have also been found at Harappa [pl. XII figs. (o) & (p)]. Sometimes the design was rendered in paint alone. Such beads were found at Mohenjodaro also[1], and should, therefore, belong to the later phases of Mohenjodaro. The trefoil pattern we come across here and on the drapery of the bearded man of Mohenjodaro[2] as well as on the red stone stand from the same site[3] seems likely to represent a common religious symbol which we find in Mesopotamia, Egypt and Crete.

The earliest example of this design is seen on the man headed "bull of heaven", probably of the Akadian period in Musee de Louvre[4]. Then it appears in Warka[5] and in Ur[6] belonging to 3rd dynasty. The symbol appears on the Hathor the Mother-goddess and on the Hathor cows of Tutank-Amen's couches [circa 1350 B.C.) It is also seen on a painted figure of the XVIII dynasty from Deir-et-Bahari[7]. In Crete the symbol on a bull head "rhytons" has this design[8].

Of the other examples of steatite beads of Harappa, one appears in the form of Steps and, one is barrel-shaped carved bead [pl. XII fig. (n)]. Beads of steatite in other shapes have also been found. One is tooth-shaped[9], [pl. XII–fig. (z 12)]. The other one is cross-shaped fig. (v) [pl. XIII], another is lenticular, holed through the edges decorated with bands of concentric circles and inlaid with red paste belonging to a later period[10].

This cross symbol had perhaps some magico-religious value as it is found on several seals of Harappa also (Vats XCV–390, 391, XCI–255.) Perhaps this ancient symbol was adopted later by Christians

1. Marshall—*Mohenjodaro & the Indus Civilization* p 517.
2. *Ibid*—I p. 356 pl. XCVII–3.
3. Mackay—*Further Excavations at Mohenjodaro* Vol. I p. 412,
4. Contenau—*Manuel d' archeologie Orientale–II* (Paris 1931) p. 6980.
5. A. Evans—*The Palace of Minos II* (1228) p. 251.
6. *The Babylonian Legends of Creation* (Br. Mus. 1931) p. 59.
7. Evans—*The Palace of Minos I* (1921) p. 513–15.
8. *Ibid*—Vol. IV (1935) p. 315.
9. Vats—*Excavations at Harappa* 'p. 397.
10. *Ibid*—pl. CXXVIII–30.

due to the popular belief in its curative powers, for it is mentioned in Quran that Christ was neither crucified nor killed[1].

Next in number to the burnt steatite and faience beads found at Harappa are those of banded agate [pl. XII-z3] Jasper, carnelian, shell [pl. XII-(z5)], Calcite & chalcedony. Horn blende and serpentine unlike Nal beads of lapis lazuli are rare[2]. The reason is not known but it can be presumed that the trade connections with the places from which lapis lazuli used to come had ceased.

The carnelian beads found at Harappa some of which are long barrel shaped[3], have affinity with those found at Ur[4], Kish[5] and Tell Asmer[6]. We also get ronnd and long tubular beads of carnelian at Harappa[7]. These forms are not at all common at Ur.

Decorated beads of carnelian, though not numerous, occur at Harappa. Of the four which have been found on figs. 'g','k','l', & 'm' [pl. XII] three are ornamented with white bands in the form of oblong circles [pl. XII-figs (k), (l), & (m)]. Though half of the bead No. e 29 is broken, it retains traces of five concetric circles in white, etched on it [pl. XII fig. (g)]. Another bead No. 3223 is heart shaped, etched on either side with a white band along the periphary [pl. XII fig. (l)]. Its size is ·5"x·37". Etched carnelian beads have been found in Kish[8], Ur[9], Tell Asmar[10]. We get much improved varieties of etched carnelian beads at Chanhudaro and Mohenjodaro[11]. Carved beads of red garnet and emerald were often worn by the Moghuls and are still in fashion in India. The depressions in these

1. Abdul Usuf Ali—*Translation of Quran* (Lahore 1938) p 730 *Ayata* 157.
2. Vats—*Excavations at Harappa* pl. CXXXI-7, 'i', 'j'.
3. *Ibid*—pl. CXXXI-fig. 2 'h', 'f'.
4. Wooley—*The Royal Gemetry* Vol. I. pl 133.
5. Mackay—*A Sumerion Palace* Vol. I, pl. IV-30, Vol. II, pl. LX-54, 55, 57, 59.
6. Frankfort—The Indus Civilization to the Near East—*Anu. Bidl. Ind. Arch.* Vol. VII, 1931, p. I.
7. Vats—*Excavations at Harappa* pl CXXXI fig 2, c, e; fig. 2, a, b,
8. Mackay—*A Snmerian Palace*—Vol I, p 56, pl IV-30; Vol. II pl. LX-55, 57.
9. Wooley—*The Royal Cemetery* pl. 135.
10. Frankfort—The Indus Civilization and the Near East—*Anu. Bibl. of Ind. Arch.* (1932) pl. I-1 m.
11. Beck—Etched carnelian beads—*Ant. Journal XIII* (1933) p. 384-98.

carvings used to be filled with paste in the days of the Mughals to simulate enamel work. Beads of banded agate are also quite common, [pl. XII-(z-3, z-8)]. One agate bead has been found here. It is not polished[1] and proves that such beads used to be manufactured at Harappa. A very long bead of this material which is illustrated by Vats[2], measures 2·6" in length and ·75" in diameter. It is perhaps one of the longest beads which have been found at Harappa.

Barrel-shaped beads of serpentine[3], short barrel shaped beads of ivory round in section divided by grooves in several zones [fig. z-13 pl. XII], beads of chalcedony, beads of agate breccia[4], short barrel globular beads of crystal[5], beads of green[6] jasper and shell[7] are some of the other beads unearthed here.

Spacers—The spacers found at Harappa are of several types. They can be divided in two groups (1) flat and (2) those shaped like curved beads. In both cases their purpose is the same, i. e. to keep the strings separately. Of the former type there are several pieces in gold, copper, faience and pottery, but the pieces of the latter variety are either in burnt steatite or faience, round and circular or oval in section, or rectangular and semioval or oval in section. The first type of spacers have three, four and six holes while the second variety of spacers have only two parallel holes. On figs. (z-14), (z-15). (z-16) [Plate XII] there are spacers of the first type, while on (z-17) there is a spacer of the second variety. Some of the types of spacers found at Mohenjodaro[8] have not so far been unearthed from Harappa.

The bead-like spacer with two holes (z-17) is of faience, ·65" in length. Another segmented rectangular bar-like spacer is not illustrated by Vats[9]. Bead spacers with just one hole have also been

1. Vats—*Excavations at Harappa* pl. CXXVIII-33.

2. *Ibid*—pl. CXXVII-49.

3. *Ibid*—pl. CXXXI-7-e-g.

4. *Ibid*—pl. CXXVIII-18 also p. 400 pl. CXXXI-1-6.

5, *Ibid*—p. 438.

6. *Ibid* = pl CXXXI-3a.

7. *Ibid*—pl. CXXXIV-2d.

8. Marshall—*Mohenjodaro and the Indus Civilization* pl. CXLVII-6. 10.

9, Vats-*Excavations at Harappa* p. 439.

found. They are described as middle ribbed beads[1]. The strip spacer on figure (z-15) is of copper with three holes, the one on figure (z-14) is of pottery while the other on fig. (z-16) is of faience. These spacers were used to keep the strings in place. They have two or more holes suggesting that necklaces with several strings were in fashion.

Terminals—The terminals found at Harappa are generally semi-circular in shape. Some of the type of terminals found at Mohenjodaro are, however, not seen here[2]. At Harappa they are found in gold bronze, faience and pottery. The gold ones are seen on the necklaces [pl. VIII figs, (e) and (p)]. These have several holes at the bottom which all terminate in one big hole at the top. Perhaps made in two sections they used to be soldered together. On plate XII-z-19 we have a copper terminal. It is also semi-circular but appears to have been cast The faience terminals found are also o similar type [Plate XII fig. z-20]. We also get combined terminal spacers here. These flattened semispherical terminals resemble those found in Egypt by Prof, Selim Hassan and also seen on a potsherd from a site near Susa[4] [pl. XLVII-b.]

Pendants—A number of pendants have been found at Harappa. Apart from the bead pendants described before there is a beautiful heart-shaped piece [pl. VIII-(n)]. Made of gold without much alloy it looks very attractive. The gold plate was perhaps pressed to form the design and then the sunken portions of the ornament were filled with blue faience to produce an enamel effect. It has gold hooks at the back for suspending it to a necklace. Such pendants are still worn, though with some additions in the design at top and at bottom[5], in central India. The shape appears to have originated from a round flower string in the centre of the necklace. There are two leaf-shaped pendants also [pl. VIII figs. (r) and (t)]. The one on figure 's' is of blue faience and that on figure 't' of burnt steatite. The piece on figure 'r' has rows of incised lines on either side of the middle rib. It has a hole ·25" deep for metal attachment. Its length is 1·7" and width ·65". The piece on figure 't' has also a hole for attachment.

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1. *Ibid*—p. 406, pl. CXXXIII-3a, b etc.
2. Marshall—*M. I. C.* CXLVII-22, 23, 26, 27.
3. Selim Hassan—*I. L. N.* Feb 21, (1931) p. 296.
4. Mackay—Further Links between Ancient Sind Sumer & Elsewhere *Antiquity* Vol. V. P. 459-473.
5. *Marg*—Vol. V—3 p. 51.

It is in the shape of a lemon leaf. The form of the piece on figure 's' is of a pipal leaf. A similar pendant which was also found here is not illustrated (No. 5785). These have holes at base for attachment and still have traces of greenish blue colour of the leaf. Leaf-shaped ornaments have been found at Ur, though they are of gold[1].

A piece of banded agate has also been found at Harappa, [pl. VIII fig. (g)]. It is crescent-shaped and appears to have been used as a pendantt. Possibly its ends were capped with gold. A similar pendant has been found at Kish[2]. Several flower-shaped pendants have also been found at Harappa. One piece of burnt steatite has been found in the form of a flower with six petals carved in relief.[3] Probably the central hole was covered with a round bead through which passed a wire to make the hook for suspending it. The leaves were also perhaps inlaid.

Another lotus-shaped pendant has eight petals inlaid with lapis lazuli and red stones alternatively [pl. IX fig. (a)]. Lapis Lazuli inlay is still intact in three of the four leaves. The red stones, however, exist only in one of the leaves. The central circle was also perhaps inlaid with some semi-precious stone. On the back there are incised circles, at the centre of which there is a small projection with a hole bored sideways, which leads us to conclude that it was strung to a necklace[4]. A similar pendant is seen at Ur [pl. XLIV B-fig. (a)]. It has also a flower design. Both these pendants have motif of a full blown lotus. The Ur piece, however, has ten petals and is surrounded by a border with a loop at the top.

Another pendant is in the shape of a crescent described by Vats as a *trratna* pendant[5]. It has, however, no affinity with the *trratna* motif we see on some of the ornaments of Baārhut[6]. It is more like the crescent-shaped amulet of Palmyra, described by D. Mackay[7], than any thing else and may have represented the moon with a central projection as she was presented in the west (the Hittite plaque of a

1. Woolley—*The Royal Cemetery* pl. 138 u 9971.
2. Mackay—'*A' Cemetery at Kish* Vol I p. 312 fig 79.
3. Vats—*Excavations at Harappa* pl. CXXXIX—6.
4. Childe, G.—*The Most Ancient East* pl. XXV-u. 8565.
5. Vats—*Excaoations at Harappa* Vol. I p. 441.
6. Cunningham—*Stupa os Bharhut* pl. XII. pl. XIII.
7. Mackay, D.—The Jewellery & Falmyra and its Significance, *Iraq* Vol. IX part 2 (1949) p 174 pl. LX-1.

later date, Louvre-No. 19222). A pendant of burnt steatite rectangular in shape has also been found decorated with a concentric circle inlaid with red paste traces of which are still visible[1]. It is a later piece as it has been found in the cemetry H. area. In length it is 1". Some horn blende pendants have also been found. They have a recess at the top to take a wire[2] and may have been used either as necklace pendants or as ear pendants.

Amulets—Some pieces of ornaments shaped like amulets have also been found at Harappa[3]. One is of burnt steatite with a hole drilled through the raised rib on the reverse. Its size is ·95"X·55". Another one is of faience with two holes; a third is ornamented with cross hatch pattern on both sides. In form these pieces resemble the amulets which we see on Kushān *Bodhisattva Padmapānī* piece from Swat Valley in the Indian Museum, Calcutta[4]. The cross hatch pattern seen here resembles the decoration on the stone vases found from different sites of the Indus Valley and elsewhere[5], [pl. XXVIII A-fig. (1)].

Another amulet of shell trapezoidal in shape was also found at Harappa, (No. 7538). It has a series of seven overlapping curved ribs and is holed at the ends to be threaded and worn possibly on the neck.

The other amulets are of several varieties. Some have natural scenes and some legendry, some are in the shape of pet animals[6]. These amulets in the ancient world were probably supposed to have magical powers[7]. On a majority of the fist type of amulets there are pictographic characters on the side and some scene on the other side[8].

The animal shaped amulets[9] were perhaps used separately or as

1 Vats—*Excavations at Harappa* pl CXXXIX-42.

2. *Ibid*—pl. CXXXIX-37-39.

3. *Ibid*—pl CXXXIX-40, 42. 45.

4. *Bodhisattva Padmapānī* from Loriyan 'Tangai, Swat Valley, *Indian Museum Calcutta* No 4985.

5. Frankfort—The Indus Civilization and the Near East, *Annual Bibliography of Indian Arch.* Vol. VII (1932) pl. 1.

6. Vats—*Excavations at Harappa* P. 334-335.

7. Blanchot—*Les Bijoux Anciens* p. 79-81.

8. Vats—*Excavations at Harappa* pl. XCIII-305; 397, 318, 219 etc.

9. *Ibid*—p. 300-304.

necklace pendants. They have all holes for stringing them and may have been worn on the neck. Perhaps they were worn as charms to ward off the evil effects of sorcery, the wearer believing that the evil exhumed for him by his adversary would thus pass on to the pet animal whose effigy he placed on his person. This belief seems to have pervaded the whole civilised world of the third *millermium.* Perhaps it was also believed that the pet animal at home, whose effigy the traveller bore on his person would immediately show any mishap by becoming ill and thus communicate the news to the other members of the family.

Here on figure 'd' [pl. XIII] we see a broken painted steatite bird perhaps a dove beautifully carved. The head and part of the body are missing. The wings are ribbed and there are suggestions of the down feather below the wings. It has a vertical hole for suspension. A similar dove amulet is seen at Ur[1] and another at Kish[2]. On figure 'e', there is a parrot of faience ·8″ in length. There are holes for the feet to be fitted which have disappeared. There are holes also for the eyes to be put in, and near the wings there are depressions perhaps to take some inlay. Traces of red eolour are still visible in this part of the parrot's body. On figure 'f' [pl. XIII] there is again a well modelled duck of blue faience. The details of the neck and the body are well marked. The head and a small part of the tail are missing. It has also holes in place of the legs. The glaze on it is still visible. Two carnelian bird amulets have been found at *Piprāvā*[3] and eight specimens are reported from Taxila[4]. All these have holes in place of legs and it is possible that they were meant for being threaded to a necklace[5]. On figure 'i' we see a fish with a hole for suspension below the eyes. It has still some white glaze on it. Similar smaller figures of fish were found among the seals and sealings having pictorial letters, [pl. XIII fig. (n)]. We come across a similar fish amulet[6] at Ur [pl. XLIV B fig,(e) and at Khafaje of 3000 B.C].[7]

1. Woolley—*The Royal Cemetery* Vol. pl. 142, u. 9078.
2. Mackay—Ancient Sind Sumer & Elsewhere, *Antiquity* Vol. VI, p. 459.
3. *J. R. A. S.* 1898, p. 869.
4. Marshall—*Taxila* Vol. II, p. 748.
5. Dikshit, M. G.—Notes on some Indian Amulets—*Bull. Prince of Wales Museum, Bombay* No. 2 (1951–52) p. 97.
6. Woolley—*The Royal Cemetery* pl. 142 u. 10944.
7. Frankfort—The oldest stone statuette etc. *I. L. N.* Sept. 26, 1936 p. 524, fig. I.

The symbolism of fish may have been connected with water cosmology of those days like its later counterpart[1]. On figure 'j' [pl. XIII] there is a squirrel of faience. Several such pieces have been found at Harappa practically from all levels. It is of blue colour with purple black stripes. It is depicted sittiig and eating fruit with both hands. Perhaps the squirrels were favourite pets of Harappa people. The gap between the hands and the body was perhaps utilised for suspending it to the neck. On figure 'k' a ram is seen. It is of faience and is depicted in a sitting posture. Other rams of terracotta have also been found. The one of faience has a hole near the neck for suspension. Amulets in the shape of rams have also been found at Taxila[2]. We cannot say if some such form of belief prevailed among the people of Harappa. On figure 'l' there is a terracotta bull amulet with a hole through its nostrils for suspension. Several other bull amulets have been found at Harappa[3] and elsewhere in the Indus Valley[4]. A bull amulet is observed at Ur[5], at Hissar[6] and at Khafaje (3000 B. C,)[7]. On figure 'm' there is an amulet in the form of a bull's bead in *Śankha* with wrinkles on the neck suggesting the folds of the skin. On figure 'g' there is a rhinoceros of steatite in sitting posture. It is a finely carved piece. The short horns. the rough hide and the snout are exceptionally realistic. There is a thin hole on the seat of the animal for suspending it to the neck. On figure 'o' there is a terracotta monkey neatly modelled with all the hair of the body depicted in detail, sitting in its characteristic manner defying the world. Monkey amulets have been found at Taxila and at Crete.[8] On figure 'p' there is an armadillo of terracotta very well moulded, with all the scales minutely depicted. Other examples of

1. Coomarswamy--*Yaksas* part II, P 13
2. Beck—*Beads from Taxila* pl. VII–10
3. Vats—*Excavations at Harrappa* pl. LXXIX 61–65
4. Majumdar, N G.—Exploration in Sind, *Memoirs* 48 pl. XXI-7-4.
5. Woolley—*The Rayal Cemetery* Vol. II pl. 142, u. 8033.
6. Schmidt—*Hissar* pl XIV–H. 3647.
7. Franfort —The Oldest Stone Statuette *I. K. N* Sept. 26, 1936 p. 534, fig. 2.
8. Beck—*Beads from Taxila* pl. VII–2, a monkey amulet has been found at Grete–Pendleburg Relics of Pre-historic Crete *I. L. N.* Nov. 28, 1936 p. 961 fig. 4.

amulets are Tortoise,[1] snake,[2] pig,[3] elephant[4]; tiger[5], cat,[6] bull mastif[7], owl[8], fly[9] etc. Most of these amulets are of faience or of terracotta which could easily be moulded, into desired shapes. Animal amulets of shell, steatite or hornblende are few. A transverse hole in the body shows that they were perhaps threaded to the neck. Such amulets are still in vogue, and are made of precious stones. They are worn by the rich in India.

On figures 'n' and 'x' are two sealing amulets with pictographical letters on them. The first on fig. 'n' is in the form of a fish and the second on fig. 'x' is in the form of a leaf.

Several triangular sealing amulets are illustrated by Vats. The three sides of these triangles disclose a number of scenes. Some of them are illustrated on figs. 'q', 'r', 's', 't' and 'w'. Some have V-like letters in the corner and disclose a human form in the middle, perhaps a God. They have holes for threading and may have been worn on the neck.

Illustrated here [on Plate XVIII] we see the neck ornaments on clay figurine as they were worn in Harappa. Strangely enough Harappa figurines do not have many necklaces on their necks. Unlike the kulli figures there are only one or two necklaces.

On figurine 'a' there is a choker of strips of metal to which are attached six long beads. Below the choker is a necklace composed of three strips of metal. It ends in the middle of the two busts.

On figurine 'b' the choker consists of two metal strips welded together to which are attached five beads. Similar chokers are seen on figurines 'd' and 'j', but the number of beads, differ in each case. On the neck of figure 'c' a collar made of two strips of metal is seen. It is protruding forward. On figurine 'd' besides the choker another

1. Vats—*Excavations at Harappa* pl. LXXVIII-21; Tortoise is described as the Lord of water in *Vajasaneyi Samhitā* XIII-31.

2. *Ibid*—pl. LXXVIII-23, 24.

3. *Ibid* pl. LXXIX-37, 38.

4. *Ibid*—pl. LXXIX-81.

5. *Ibid*—pl. LXXIX-83.

6. *Ibid*—pl. LXXIX-58.

7. *Ibid*—pl. LXXIX-47.

8. *Ibid*—pl. LXXVIII-5.

9. Mackay—*Further Excavations at Mohenjodaro* p. 642. He also points out the various sites from where fly amulets have been found.

necklace is seen. It consists of two strips of metal with a disc-shaped pendant. On figure 'e' we have a man wearing a choker which consists of a metal strip to which are attached five beads. It appears tbat chokers used to be worn both by men and women. On figure 'f' we find a rounded collar type of neck ornament on a male. On figure 'g' four collars are joined to form one neck band. This necklace is worn by the bearded man illustrated by Vats. These two types of collars appear to be made of plain strips of gold, silver or bronze, the edges being flattened to form a curve.

On figure 'h' we find a choker type of ornament seen on the neck of the clay women. Below it there is an elaborate necklace which covers a part of the breast. The choker has triangular pendants attached to it. The necklace consists of three strings of beads to which is attached a rectangular disc-shaped pendant. The design on it appears to be novel. On the clay figurine marked 'i' the choker is of the ordinary variety, but the second necklace consists of three metal strips with open ends turned sideways. It is an elaborate ornament if it is in one piece. We cannot be certain of it as no such ornament has been discovered in the excavations. On the neck of figurine 'j' the choker consists of two strings of beads to which are attached four pendants. On figurine 'k', however, we see a choker with elongated decorated beads. There is also a necklace with a peculiar pendant which appears to be an amulet. On the neck of other clay figurines there are ordinary chokers described above with slight variations in the number of pendants. Some have four beads, others five, and the rest seven.

The beautiful jewellery excavated at Harappa and the bejewelled figurines clearly show to what heights the craftsmanship of this city had reached in those early days. From an examination of the neck ornaments on the figurines, we conclude that both men and women wore chokers and women often wore necklaces in addition to chokers. The chokers were of three types : a– of a strip or strips of metal worn generally by men[1]; b– of strips of metal with

1 Vats—*Excavations at Harappa* pl. LXXVI–11, 12, 14, 19, 21, 22; These are male figures on which collars consisting of one strip, two strips and four stripr of metal and seen One male figure on pl. LXXVI–20 has a choker with a strip of metal to which are attached pendants. See also Wheeler–Harappa–*Ancient India* No. 3 pl. LVI–9. Here the same type of choker is seen on a male figure.

pendants; c– of strings of beads to which were hung pendants. The necklaces were also of three varieties : a– of metal strips only b– of metal strips and a central disc-like pendant; c– of metal strips and a central amulet. From these facts we presume that some of the necklaces with pendants we see here [plate X] were used as chokers. The development in chokers must have been from plain strips to strips with pendants and then to strings of beads with pendants.

In these ornaments we get three phases of development.

Mohenjodaro Culture—From the hoards found at Mohenjodaro it appears that gold, copper and silver were available in plenty to people of Mohenjodaro as pieces of high gold purity and almost like those of Ur in colour and density have been found at this site along with silver pots and copper implements of all types. On plate XXI are illustrated some of the jewellery found by Dikshit in a silver casket. The main string of the necklace marked 'a' [pl. XXI] is composed of light green jade beads of barrel shape, ·9″ in length and ·4″ in diameter, and gold disc beads. The jade beads have been cut in such a way that they retain their natural colouring and their veins[1] in symmetric bands. In the centre there are seven composite pendants of jasper agate very much like some of the necklaces found at Harappa [plate X] but these pendants are longer than those of Harappa. These composite pendants consist of two beads, one of Jasper agate and the other of steatite. These long cylindrical steatite beads are coupled with the jasper agate beads by means of caps of gold. Thick gold wire twisted at end passes through the pendants unlike the copper wire used at Harappa.[2] The disc-shaped gold beads on the string of this necklace are composed of two gold hollow caps soldered together. Only in one or two cases the soldering is visible while in others it cannot be traced with the naked eye. The necklace as rethreaded presents an absolutely modern look, and is one of the most elegant pieces of jewellery of the Indus Valley Civilization. On figure (a) [pl. XX] the necklace is composed entirely of gold beads. These beads are round and solid and it is quite possible that they were cast in a mould. The spacers seen here must have been made by soldering together two beads of gold.

1. Marshall—*Mohenjodaro & the Indus Civilization* pl. CXLVIII–6.

2. Vats—*Excavations at Harappa* p. 65.

Among the second hoard of jewellery found by Dikshit in a copper vessel, there is a necklace of long carnelian beads in six strings, [pl. XXII. fig. (a)]. The long beads are 4·85" in length and ·45" in diameter and the small ones 3·25" in length and ·45" in diameter. They are of deep red colour and are translucent. It looks as if great care was taken when cutting them to get their natural veinings in as regular a position as possible,[1] a task which even today calls for considerable skill on the part of the lapidary. Some of the beads are boxed on both ends, suggesting that the holes had been worn when they were last threaded. There are strips and globular spacers, both of bronze. The terminals are composed of semi-circular flat hollow bronze cups. There is no sign of soldering on these cups, perhaps because they were beaten out of thin sheet metal and turned over. At the top of these terminals are two bronze tubes with socket-like ends to prevent them from slipping into the holes of the terminals. Such terminals and tubes were in use even during the Moghul period.

These tubes are also made of bronze sheet pressed together. Here also the soldering marks are not visible. It appears that these terminals and tubes were once covered with gold. The terminals have seven holes at their base and one at the top suggesting that they were made to carry a necklace of seven strings. This ornament is described by Marshall as a girdle[2] but probably it is a necklace, as similar necklaces have been found at Ur[3] and at Kish.[4] They are composed of long barrel-shaped carnelian beads, though Mohenjodaro beads are larger than those of Kish and Ur. In this hoard several gold bead caps have also been found [pl. XXII fig. (c), (d), (e), (f) & (g)] but without the corresponding beads. The colour of the gold of these caps varies from coppery red to pale yellow unlike the coppery red gold of Harappan caps. The colour of gold clearly show that the goldsmiths of Mohenjodaro had learnt the art of mixing silver with gold. These caps are ·75' long and ·45" wide, oval in section.

1. Mackay—*Early Indus Civilization* p. 82, 83.
2. Marshall—*Mohenjodaro & the Indus Civilization* Vol. I–p. 34; pl. CLII–b2.
3. Woolley—*The Royal Cemetery* pl. 132 u. 11806 ci.
4. Mackay—*A Sumerian Palace* Vol. II pl. XLIII.

Among the other pieces is an irregular bead of turquoise, with a hole through which passes a gold wire with its ends bent at right angles to act as a clip of the cap which covers the bead partially[1] [pl. XXII fig. (b)]. This is evidently a pendant. Hard stone beads partially covered with gold caps have been found at Ur also.[2] Recently at Lothal a blue stone (turquoise) short barrel-shaped bead covered with gold at ends has been found.[3]

From the third hoard in which most of the beads were found loose, a necklace of hollow globular gold beads was recovered [pl. XXIII fig. (e)]. Marshall has described it as a bracelet, but it does not seem to be a wrist ornament, because when worn on the wrist the terminals would leave an inelegant gap between them. These terminals are semi-circular and have only one hole at the top. Moreover, no bracelets of this type are seen on the wrists of the clay figurines which often wear bangles.[5] It is, however, possible that this piece was used as a choker[5] like the one seen on the neck of figurine 'a' [pl. XXXII]. The terminals of this necklace have six holes at the base. This leads us to the conclusion that the necklace had six rows of beads. All the beads appear to have been cast and the spacer seems to have been cut out of sheet metal. The terminals also must have been cut out of sheet metal and then shaped. The soldering must have been done thereafter. Without soldering the two pieces of the terminals would have gone under while threading the necklace.[6] This necklace resembles the one found at Harappa[7] but it has additional beads at the top of the terminals marking a development in design.

The second necklace of this hoard is made of small globular gold beads interspersed with steatite beads of the same size [pl.

1. Turquoise was perhaps a very valuable stone in those days, otherwise so much care would not have been taken to enclose it in gold caps. Also see Marshall—*M. I. G.* Vol. II p. 522.
2. Woolley—*The Rayal Cemetery* pl. 132, u. 12474.
3. Ghosh, A.—*Indian Archaeology* 1956-1957 pl. XV-A4.
4. Marshall—*Mohenjodaro & the Indus Civilization* pl. XCIV-6; XCIV-14.
5. *Ibid*—pl. XCIV-1.
6. Marshall—*Mohenjodaro and the Indus Civilization* p. 522. It was discovered at a depth of 6 feet below the surface of room 8 of home VIII block 1, section B. H. R. Area.
7. Vats—*Excavations at Harappa* pl. CXXXVII-7.

XXIII fig. (f)]. They now look white perhaps due to bad cleaning.[1] The cylindrical beads in the centre are also of gold. They are attached to the necklace by a thin gold wire which has been doubled at the end and passed through a washer of gold, the bead and the cap at the end. The two ends of the wire are soldered to the base of the cap.

The third necklace is composed of beads of Jasper agate and carnelian alternated with gold beads which appear to have been cast [pl. XXIII fig. (g)]. The two big gold beads of the necklace which are in the centre also appear to have been cast. Some of these stone beads have gold caps. The terminals of the necklaces on figs. 'g', 'h' ahd 'i' [pl. XXIII] are of the same type as that of the choker described above and seen on figs. 'c' and 'd'. But these are smaller in size and have no beads at the top like the Harappan examples.

The fourth necklace is composed of five strings of gold and steatite beads arranged alternately [pl. XXIII fig. (h)] There are eight spacers to keep the strings in position. Some of the gold beads of this necklace are globular in shape while the others are cylindrical. The terminals are of the same variety as those of the other two necklaces. The steatite beads which look white at present would have looked very beautiful with their rich leaf green colour along with the rich yellow beads gold.

The fifth necklace appears to be a costly one [pl. XXII fig. (i)]. It has circular and globular beads of gold which are interspersed with beads of onyx green felspar, turquiose matrix and agate. The circular gold beads are made of two thin cups with a groove round the bead to carry the wire so that the buldging positions may be in the front. The two pieces are so well soldered that no mark of soldering is visible. The cenral bead is of agate which is half coverd on both sides with gold cups. There are six pendants with dome shaped caps of bronze. These caps have gold loops. Such an arrangement is also found in the hollow hemispherical bronze buttons which were worn by Hall Statt and Coban folk of Hungary of the bronze age.[2] Those buttons also have loops. The stones of this necklace appear to have been carefully selected for their regular

1. Often these beads lost their colour due to faulty cleaning—Mackay—*Further Excavations* p. 503.

2. Marshall—*Mohenjodaro & the Indus Civilization* p. 523.

marking. Such gold capped beads have been found in Persia and are said to date from the first Persian dynasty.[1] Very similar beads have been found at Anau in Turkistan[2] in Ur[3] in Khurab[4] and Kish[5] [Pl. XLIV-A figs, (a), (b), & (c)].

Of the other beads strung as neklaces of this hoard[6] four are being illustrated here [Plate XXIV]. The first on figure 'i' has jade, Jasper agate, carnelian, chalcedony and gold beads. The second on figure 'j' has Jasper agate carnelian, lapis lazuli and six silver beads. The third on figure 'g' has beads of other stones including one of cat's eye and one of onyx. On one end of the necklace of figure 'i', there is a tubular terminal like the one seen before on the carnelian bead necklace [Pl. XXII fig. (a)]. The fourth necklace on fig 'h' has similar stones.

In another hoard found by Mackay in the next excavation of Mohenjodaro a number of beads were discovered.[7] One string of beads is shown on fig. 'r' [pl. XXVI]. The central bead is of gold, and is barrel-shaped. The others are of copper, bronze and Jasper agate. The small beads are of steatite. A barrel-shaped bead of silver[8] was also found by him. It is made of thin foil of silver set on core and is oval in shape.

In a recent excavation at Lothal very small beads of gold with thin spacers and two semicircular ends were found. They are evidently parts of a necklace. They have been restrung and present a beautiful shape.[9] These beads, however, appear to belong to the last phase of Mohenjodaro Culture.

Beads of Mohenjodaro—In the absence of definite stratigraphic evidence regarding each of the beads it is an uphill task to trace the development of their forms and ornamentation, for as many as nine different levels of culture have been noticed at Mohenjodaro

1. Childe—*The Aryans* p. 124.
2. Pumpelly—*Explorations in Turkistan* Vol. I p 153, fig. 259.
3. Woolley—*The Royal Cemetery* pl. 132 u. 12474.
4. Sir Aurel Stein—*An Arch. Recon. in N. W. India & S. E. Iran*, pl. X-259.
5. Mackay—*The 'A' Cemetery at Kish* Vol. I p. 372 fig. 79.
6. Mackay—*F. E. M.* p. 572-28.
7. Mackay—*F. E. M.* p. 527-28.
8. *Ibid*—p. 501.
9. Ghosh, A.—*Indian Archaeology* 1956-57 pl. XV-c.

and our records only say that a particular type of bead is more common in the lower than in the upper levels.[1] It must, however, be mentioned that the forms of beads change slowly. It is the method of threading which often undergoes quick changes and old beads are often preserved and found along with new types.

At Mohenjodaro we find beads of practically all shapes and forms.[2] We get beads of gold, silver. and copper along with beads of stone, shell, paste and pottery, [pl. XXVIII].

The gold beads here are disc-shaped double convex, flat in section middle ribbed; globular; short barrel shaped; and facetted. Of the disc-shaped beads, two types are found, viz double convex shown on pl. XXVIII figs. 'b' and 'c' and middle ribbed. The former were perhaps made by soldering together two round pieces of sheet which have been cast in small moulds. The short barrel-shaped (fig. 'f') and facetted beads (fig. 'd') were perhaps cut out of thin sheets of gold, hammered into shape, and set on core. The disc-shaped beads are identical with Sumerian beads[3] of early dynasty III circa 2500–3300 and the beads of Troy at the end of II G period[4]

It can, however, be presumed that the disc-shaped beads with the middle rib were manufactured first. Then came the double convex shaped and lastly the cast beads.

The silver beads are mostly globular in shape as shown on fig. 'e' and are not plentiful. The cause, however, is not known. Mackay says that silver was more common than gold at Mohenjodaro.[5]

The copper beads are mostly solid, globular in shape (fig. 'g'). Traces of gilding are visible on several of these beads[6] and it is just possible that they were manufactured to imitate globular gold beads. One Copper wire bead made of ·1" thick wire with a hole of ·12" diameter illustrated on fig. 'h' has been found, though pottery beads of similar form are numerous, (fig. 'i'). In Egypt such beads

1. Mackay—*Further Excavations at Mohenjadaro* p. 511.
2. Marshall—*Mohenjodaro & the Indus Civilization* p. 509.
3. Mc. Cown—*The Comparative Stratigraphy of Early Iran* (1942) p. 53. Table I.
4. Childe—*New light on the Most Ancient East* p. 162, 182.
5. Mackay—*Further Excavations at Mohenjodaro* p. 501.
6. *Ibid*—p. 501.

of wire were quite popular during the 1st and 5th dynasties.[1] Such beads have also been found at Anau[2].

The stone beads we get at Mohenjodaro are quite numerous. Beads of agate carnelian, Jasper, haematite, steatite, limestone, serpentine, green felspar, turquoise, calcite, jade, crystal, lapis lazuli, onyx and cats eye have been found. Of course the most numerous are the beads of steatite, but they were perhaps manufactured out of powdered stone and therefore, should fall in the group of paste beads.

Beads of carnelian are of selected deep red stone mostly cylindrical barrel-shaped, (fig. z-9). Similar beads occur at Ur and Kish as noted before. These are, however, of darker red than those found in the west and are longer in size. Disc-shaped beads of carnelian have also been found at Mohenjodaro though they are not very many. In Egypt and Sumer they are very common.[3] The most important beads of carnelian are, however, the etched ones [pl. XXVIII-figs. (j), (k'), (l), & (m)]. Several of these have linear decorations[4] but some have designs, for example those on figs. 'j', 'k', and 'm'. These designs are more elaborate[5] than those seen at Harappa, [pl. XII figs. (j), (k), (l), & (m)]. Similar etched beads have been found at Ur, Kish, Tell, 'Asmar etc. [pl. XLIV A[6]]. Etched carnelian beads are generally of three varieties,

1. Petrie—*Arts and Crafts* p. 85, Morgan, J *Pre'historique Oriental* Vol. II p. 206; III-p. 209, G. Childe—*A new Light on the Most Ancient East* pl. XI-B.
2. Pumpelly—*Explorations in Turkistan* 1 p. 150; pl. 40. Also in Georgia—*Ancient Egypt* (1928) p. 57 and in Hungary—*Guide to Antiquities of Bronze Age, British Museum* (1920) p. 143 fig. 164.
3. Mackay—*Further Excavations* pl. CXXXVII-61; also p. 498.
4. Marshall—*M. I. C.* p. 515; pl. CXLVI-43, 44, 45.
5. Mackay—*F. E. M.* pl. CXLI-4 or pl. CXXV-5 as compared to Vats—*E.* H. pl. CXXXI-4a.
6. Wolley—*The Royal Cemetery* p. 133; Mackay-'*A*' '*Cemetery etc.* Vol. II, pl. XLIII-9; Frankfort-The Indus Civilization and the Near East. *Ann. Bibl. Ind. Arch., Vol. VII* (1932) p. 4; pl. I Frankfort—Tell Asmar, Khafaje and Khorsabad—*Oriental Inst., Chicago Communications No.* 16 (1933) p. 48; Mackay—*Antiquity* Vol. V (1931) pps. 459-61; Schmid—*Hissar* p. 223 pl. XXXV; Arne—*Shāh Tepe* p. 282, pl. XCII No. 612. : Beads in the reserve collection of *Louvre*.

some have white design on red background, some have black design on white, while others have black design on red. At Mohenjodaro the first variety of beads is the most common and was probably made by drawing a pattern with a solution of alkali, perhaps soda, and then heating the bead. For the second type of beads the stone was covered with a solution of soda. The pattern was drawn on the surface and then the bead was heated.[1] Only eight such beads have been found at Mohenjodaro.[2]

Perhaps the popularity of the etched carnelian bead and its comparative high price were responsible for the manufacture of its imitations some examples of which we get at Mohenjodaro.[3] Most of them are of steatite or steatite paste, [pl. XXVIII figs (n), (o), (p), & (q)]. They were perhaps coloured red leaving the white portion in its natural state and afterwards fired. Limestone beads are mostly of barrel shape. Some composite beads of limestone have also been found. In one case the first portion is of limestone pink white in colour, the other portion is of shell. Stone vessels of limestone have been found in Egypt, in the very early dynastic period[5]. This stone was also used for making seals in Sumer.[6] It is strange that this opaque stone was used for manufacturing beads at Mohenjodaro when other more beautiful stones were available. It is possible that they were covered with some coloured glaze which has since disappeared. One bead is composed of two stones, white chalcedony and red carnelian. There are three pieces of carnelian and two of white chalcedony, To simulate agate beads the carnelian pieces were placed at the ends and in the middle and chalcedony ones in between.[7] Of agate beads we get beautiful examples at Mohenjodaro some of which are highly polished, [pl. XXIV-necklace on figure (i)]. Most of the beads of agate are of short barrel shape, (fig. 'z-6') but long barrel beads have

1. Beck—Etched Carnelian Beads Ant. Journal XIII (1933) p. 384-98.
2. Mackay—*F. E. M.* p. 505.
3. Mackay—*Further Excavations* p. 505, pl. CXI-8, 35; CXXXIX-15, 16 CXXXVI-4, 44, 50, 59, 61; CXXXVII-87, 88; CXXXIX-98, 99; Marshall—*M. I. C.* CLVIII-8.
4. Mackay—*Further Excavations* pl. CXXXVI-5,
5. Thompson, C.—*Badrian Civilisation* p. 56.
6. Mackay—*Anthropological Memoirs*, Fiels Museum Chicago, Vol. I p. 56.
7. Mackay—*F. E. M.* pl. CXXXV-1, 2, 5.

also been found. These red and white banded beads were perhaps matched against pale orange citron colour beads of chalcedony and red brown beads of jasper. When strung together they must have produced a beautiful colour combination.

Beads of chalcedony[1] also occur in different shapes. The most common, however, are the short barrelled ones, shown on fig. 'z-7'. Jasper beads are also not rare. They are of two colours, olive green and dark red[2]. Beads of this stone, with ends of chocolate colour and white centre, black with red veins, with brown ends and red centre, and with veins in white, have also been found.[3] Beautiful examples of Jasper beads as pendants of the necklace [pl. XXI-a] have already been described. Green felspar beads have also been found at Mohenjodaro though they are not very common[4], Such beads have been found in the pre-flood area of Ur[5] and in neolithic settlements in 'FAYUM' by Miss Caton Tompson[6]. This stone is found in the Nilgiri Hills of South India[7] and may have been one of the articles of trade as such beads have been found with the ornaments of the pre-dynastic period of Egypt and among those of the 12th dynasty.[8]

Haematite beads[9] also occur at Mohenjodaro. Most of them are of short barrel shape. The stone is obtainable among the rocks seventeen miles from Fori Sandaman in Baluchistan. These beads have a refractive index varying from 3 to 3.2 and specific gravity of 5. Beads of cat's-eye and onyx[10] have also been recovered from Mohenjodaro, [pl. XXIV necklace (h)]. White with veins of black they look very beautiful. There are, however, not many pieces of this stone.

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1. Marshall—*M. I. C.* pl. CI-(1).
2. Mackay—*F. E. M.* pl. CXXXVII-40; CXXXVIII-6.
3. *Ibid*—CXXXIV-19, CXI-41, CXXXIX-85; Marshall—*M. I. C.* 517 pl. CXLVIII-(a).
4. Mackay—*Idid* pl. CXXXVII-21, 37.
5. Wooley—*Antiquaries Journal* Vol. X, p, 336.
6. Caton Thompson—*Antiquity* Vol. I, p. 336.
7. Mackay—*F. E. M.* p, 500.
8. Marshall—*M. I. C.* p. 523.
9. Mackay—*F. E. M.* Vol. II pl. CXXXVII-26. Vol. I p. 500,
10. *Ibid*—pl. CXXXVI-68,

The beads of turquoise[1] were perhaps considered very valuable. Only a few of them have been found at Mohenjodaro. Probably it was considered to have some magical properties as blue or greenish blue was always considered as a specific colour against the evil eye. Blue cornflower as the emblem of Mother Goddess was perhaps connected with the goddess worshipped as the Queen of Heaven and the divine mother. The wearer of blue stone thus may have acquired special protection of the Mother Goddess. Beads of turquoise, triangular in shape have been found at the prehistoric Chinese site of Panshan.[2] Beads of serpentine[3] are also reported to have been recovered by Mackay from the upper and lower levels of Mohenjodaro. They are of monochromic colours and have a refractive index of about 1·53 and specific gravity of about 2·60. Qwartz and Crystal beads are rare. Three of them were found by Mackay[4] and one by Marshall.[5] The one found by Marshall is of short barrel shape and those found by Mackay are of short barrel, rectangular and globular in section. An example of a bead of breccia is illustrated by Mackay[6] Beads of hornblende have also been found at Mohenjodaro.[7] The most common shape in which the beads of this stone have been manufactured is cylindrical. Pendants of this stone have been found in large numbers both at Harappa and at Mohenjodaro.[8]

Beads of lapis lazuli are, however, not as common at Mohenjodaro as they are Nal[9] and other Sumerian sites. Only two beads were found by Mackay[10] and a few by Marshall.[11] We are not, however, quite sure about the cause of the paucity of beads of this material as Mackay says that he found a beautiful top of small toilet vase in 1031 from Mohenjodaro manufactured out of this stone.[12]

1. *Ibid*—pl. CXXV-18; Marshall-*M. I. C.* p. 522, pl. CLI-b etc.
2. Andersson, J. G.—*Researches into the Pre-history of the Chinese M. F. E. A.* (1943) Bull. 15 p. 128, frontispiece 2-1.
3. Mackay—*F. E. M.* pl. XCI-15; CXXXVII-42; CXXXIX-88.
4. Mackay—*F. E. M.* pl. CXXXVII-17; CXXXVIII-12; CXI-26.
5. Marshall—*M. I. C.* pl. CXLV-33.
6. His plate CXXVI-44.
7. *Ibid*—pl. CXLV-1.
8. *Ibid*—pl. CXLVII-28-36.
9. Hargreaves—Arch. Surv. of India, *Memoirs* 35 p. 43.
10. Mackay—*F. E. M.* pl. CXXXVII-18, 76.
11. Marshall—*M. I. C.* p. 523 pl. CL-h-11, 29; j-16, 20, 24, 27.
12. Mackay—*F. E. M.* p. 500-footnote (1).

Shell beads have also been recovered here, though as Mackay reports they are more common in the upper levels than in the lower. One is of mother pearl also.[1] They are generally disc-shaped, but the one of mother pearl is short barrel shaped. Several cylindrical beads of shell have been found by Marshall. Mackay has also found many denticulate beads.[2] These beads must have been cut out of shell.

The number of steatite beads is quite large at Mohenjodaro. They were perhaps, manufactured[3] out of steatite paste made into blocks. From these blocks beads were carved out. No binding substance in the paste is, however, visible. Probably a thin glue extracted out of buffalo hide by heating it in water was used in the steatite paste. Being rough in its original form a sort of glaze may have been applied to which colouring material was added as they did in colouring and glazing the Moghul pottery. The finished beads in majority of cases look either blue or green. Similar steatite beads of wax green colour occur in *Pan Shan* area of pre-historic China.[4] There are un-ornamented and ornamented beads of steatite at Mohenjodaro. The un-ornamented beads of steatite are of long cylindrical shape,[5] long barrel shape,[6] short barrel shape, globular, discoid and tubular. More interesting, however, are those decorated with wavy lines in white against a background of red manufactured to imitate carnelian beads, [pl. XXVIII figs. (o) & (t)]. They are disc-shaped, tubular and barrel shaped. On fig. z-1 there are disc-shaped and tubular beads and on figure 'u' there is a barrel-shaped bead. There are carved beads of steatite which appear to have been cut by a drill, [figures (r), (u) & (z-5)]. At the curves drill marks can still be seen. The bead on figure 'r' is decorated with lines at right angles, very much like the one illustrated by Frankfort from Tell Asmar.[7] The other beads[8] have different designs.

1. Mackay—*Further Excavations* pl. CXXXVII–43.
2. *Marshall—M. I. C.* pl CXLV, 1–10; Mackay–*F. E. M.* pl. CXI–22.
3. Mackay—*F. E. M.* 495–96.
4. Andersson, J. G.—*Researches into the Pre-history of the Chinese* p. 129, pl. 72–3, 11.
5. Marshall—*M. I. C.* CXLV–3.
6. *Ibid*—CXLV–24–32.
7. Mackay—*Further Excavations etc.* pl. CXXXXVI–35; Frankfort–The Indus Civilisation etc.—*Annual Bibl. of Ind. Arch.* Vol. VII–1932, pl. I,
8. Mackay—*Further Excavations etc.* pl. CXXXI–57, 67 etc,

Then there are steatite beads with trefoil designs on them [pl. XXVIII figs. (v), (w), (x) & (y)]. These beads have also two types of trefoil designs. On some[1] there are no dots inside the design, while in others there are three double circles with dots.[2] It can, therefore, be presumed that the beads with the latter design are of a later period than the former. On the steatite beads of Harappa the trefoil designs have no circular dots.[3] Several beads of the latter variety were found by Marshall.[4] This design has been observed in Mesopotamia, Crete and Egypt.[5] Tubular denticulate beads of steatite with yellow glaze have also been unearthed here, (fig. z-22). One of the denticulate beads is exactly similar to the one at Harappa[6] and the other[7] is in the form of letter 'M' which records a development in its design.

After pottery the most numerous beads in Mohenjodaro are those of faience. Perhaps quartz paste mixed with the glue of the buffalo hide and borax used to be moulded in the desired shapes to produce faience beads which were later fired in kilns. The absence of moulds among the finds of the Indus Valley is perhaps due to the fact that they were made of unfired clay. We come across faience beads of all shapes and designs. The thin long tubular beads are exactly like those found in Egypt[8] [pl. XXVIII fig. (z)]. Then, there are cylindrical beads of faience very neatly moulded and finished by clever craftmen. There are also globular beads of faience, (fig. 'z'). Then, there are disc-shaped beads of this material.[9] The most interesting are the segmented and the notched beads, [pl. XXVIII figs (z-2) & (z-3)]. Segmented beads with two, three, four and five sections have been found at Mohenjodaro. Such beads also occur at Harappa. Having been made of blue faience these beads look

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1. *Ibid*—pl. CXXXVI-66.
2. *Ibid*—pl. CXXXVIII-3.
3. Vats – *Excavations at Harappa* pl CXXVIII-5.
4. Marshall—*M. I. C.* pl. CXLVI-40.
5. Wheeler—*The Indus Civilisation*—p. 75.
6. Vats—*Excavations at Harappa* pl. CXXVIII-29.
7. Mackay—*F. E. M.* p. 509
8. Marshall—*M. I. C.* p. 510 pl. CLII-16F; Mackay—*F. E. M.* pl. CXXIX-15.
9. Marshall—*M. I. C.* pl. CXLVI-2.

quite beautiful. Perhaps by chance some of the beads must have at first got joined together which would have led to the discovery of this form. Such beads, as has been observed before have been found in Tell Brak in northern Syria from the Jamdat Nasr level, in Crete, and in Egypt among the finds of the middle Minoan III and the XVIII dynasty. Such beads have also been found in the Wiltshire burrows from the middle Bronze Age level.[1] Beads with three compartments occur at Hissar II-a level.[2] A bead of gypsum with six divisions occurs in the dancers grave of Hissar III-b level.[3] From another grave of Hissar III-c a string of segmented beads small and big has been found.[4] They also occur in Mesopotamia in the Pre-Sargonic period.[5]

The notched beads described by Marshall as of unusual shape are with one, two, three, four and five notches rhombodical in shape.[6] Two specimens of beads of similar design occur in Kish.[7] Similar beads occur in Hissar,[8] Shah Tepe[9] and Sumer,[10] though not in the same material. It is possible that Shah Tepe culture in some phases was contemporaneous with some phases of Mohenjodaro.

Still another type of faience bead is in the cog-wheel shape, [pl. XXVIII fig. (z-4)]. These are made of soft paste in moulds. Blue or green in colour they withstood wear and tear perhaps by being threaded together. It is possible that these beads had some amuletic value and represented the sun motif. Such beads have also come from Pre-dynastic Egypt from HIERAKONPOLIS.[11] Pieces of this type in faience vary in diameter from ·6" to ·98" and in thickness from ·08" to ·11". Cogwheel beads in shell and in pottery

1. Wheeler—*The Indus Civilisation* p. 74.
2. Schmdit—*Hissar* p. 123, pl. XXXIII 17.
3. *Ibid*—fig. 133.
4. *Ibid*—p. 229, pl. LXVI.
5. Marshall—*M. I. C.* p. 514.
6. *Ibid*—pl. CLVI-31, 39.
7. Mackay—Excavations of Palace and Cemetery 'A' *Anthro. Mem. Field Museum Chicago* Vol. I part I & II, pl. X, 39-40, p. 186.
8. Schmidt—*Hissar* p. 231, pl. LXIX-24.
9. Arne—*Shah Tepe* p. 83, 148, 149, pl. XCII-grave B 1157.
10. Mackay—Further Links—*Antiquity* (Dec. 1931) p. 459-73 (of shell)
11. It is in the Asmolion Museum, also see Mackay—*F. E. M.* p. 512.

have also been found[1] and it appears that the shape was quite popular in the Indus Valley. These beads are of three types : 'a' both sides flat, 'b' one side rounded another plain, and 'c' with circular decoration on one side and the other side plain. The form of beads of 'c' type seems to have developed from the beads of form 'b', which in its turn developed from 'a'. The teeth here also seem to have developed from the original flat section of the edge,[2]

From the other sites of Mohenjodaro culture the beads found are almost indentical in shape and material with those already described. Vats has discovered from Purbāne Syāl an oblong carnelian bead oval in section,[3] a bead of banded agate [pl. XXXVI fig. (j)] and a disc bead of steatite [pl XXXVI figs (g) & (h)]. From Lakhiyo, Majumdar has found several beads[4] among which are steatite beads, cylindrical, flat, barrel-shaped and discoid [pl. XXXVI-(r)]. A cylindrical lapis lazuli bead[5], barrel-shaped Jasper beads green with red and white specks[6] and a cylindrical felspar bead[7] were also found by him. From the lower levels of Jhukar he has found facetted beads of steatite square in section[8] and discoid beads of steatite green felspar, Jasper and lapis lazuli beads[9], From Amri[10] he has found discoid beads of steatite and green felspar beads. From the lower levels of Lohumjodaro[11] he recovered steatite, carne lian. felspar and viterous paste beads and a bead of copper, short barrel-shaped.[12] From Chanhudaro he found beads of carnelian, chalcedony felspar, lapis lazuli, steatite and faience.[13] From Rangpur and Lothal Sites in Gujrat a number of beads of steatite, faience

1. Mashall—*M. I. C* pl. CXLV-15 etc
2. Mackay—*Further Excavations at Mohenjodaro* pl. CXXXVI-84 to 81.
3. Vats—*Excavations at Harappa* p 476.
4. Majumdar—Explorations in Sind Arch. Surv. of India, *Memoirs* p. 78, pl. XXIII-28 (b).
5. *Ibid*—p 13, pl. XVII-9,
6. *Ibid*—pl. XVII-8.
7. *Ibid*—pl. XVII-7.
8. *Ibid*—pl. XVII-4.
9. *Ibid*—p. 13.
10. *Ibid*—p 33.
11. *Ibid*—p. 55.
12. *Ibid*—pl. XXXIII-25.
13. *Ibid*—p. 40-41.

agate, carnelian and gold have been found. Of special interest are the cogwheel type of beads already noticed at Mohenjodaro and Harappa, fluted pendant of faience, the disc type steatite beads and the long carnelian beads from the latter site.[1] From Rupar, District Ambala the recent excavations have yielded among other beads, those of long carnelian of disc-shaped steatite and of banded agate.[2]

Mackay has also found a number of beads from Chanhudaro[3] in the excavations conducted by him. He suggests that Chanhudaro was the centre of bead making in the Indus Valley. In fact a complete bead making shop was discovered by him.[4] Of the carnelian beads two varieties are reported by him, those which have white designs on red background and those which have black designs on white base. The third variety of beads with black on red base have not yet been reported.[5]

There are about fourteen of the first variety[6] and four of the second variety.[7] As mentioned, decorated beads of carnelian have been found at Taxila, Baluchistan, Tell Asmar and Ur.[8] The most popular design was the figure of eight [pl. XXXVIII fig. (o)]. Similar beads have been found at Lothal[9] and also at Chanhudaro by N. G, Majumdar.[10] Beads with similar design are still in use in some parts of India and are supposed to ward off the evil eye. A similar figure is also seen on some of the punch-marked coins[11]. The

1. A. Ghosh—*Indian Archaeology* (1954–55) p. 11, 12, pl. XIV–a, b, c.

2. Y. D. Sherma—*Ancient India No* 9 p. 123.

3 Mackay—*Chanhudaro Excavations* p. 186–210. Bead Making in Ancient Sind. *Journal Amer Oriental Soc.* Vol. LVII p. 1–15.

4. Mackay—*Illustrated London News* 14th Nov. 1936, p. 864.

5. Mackay—*Chanhudaaro Excavations* p 199.

6. *Ibid*—pl. LXXIX–1–5, 7–9, 11, 13, 15, 16.

7. *Ibid*—pl. LXXIX–6, 10 12, 14.

8. Beck—*Antiquaries Journal* Vol XIII P. 384–398; Piggott–Pre-historic *India* p. 189, Wheeler–*The Indus Valley Civilization* p. 75–76; Frankfort–The Indus Civilization etc *Annual Bibl. Ind Arch.* (1932) p 2 etc.

9. A. Ghosh—*Indian Archaeology* pl. XII, second line from top Nos. 3 & 4 from the left.

10. Majumdar—*Arch. Surv. of India Memoirs 48* pl. XVII–25.

11. Allen, J.—*Ancient Indian Coins Cat. of Brit. Museum* (1936) Index IV, p 7.

other designs are on figures (n), (p), (q), (r), (u), (v) & (w) [pl. XXXVIII]. On figure 'n' we have a bead with a design almost similar to the one found at Mohenjodaro,[1] but this design differs in form. It is six sided while the Mohenjodaro example has only four sides. On figure 'p' there is a bead with three circles. The chavern pattern we see on bead 'r' is exactly of the types seen at Ur,[2] and also at Tell Asmar.[3] Here we come across same highly developed designs as for example the beads on figure 'u', & 'v'. We also observe how from the simple circle of the bead illustrated on figure 't', the complex design on the bead on figure 'v' developed. It appears that these beads were decorated to lie flat on the surface as an exact replica of the motif on the obverse is repeated on the reverse.

On [pl. XXXVIII] fig. 'z' we find a cylindrical bead of copper wire[4] from Chanhudaro. Another simpler one has also been found here.[5] A copper wire bead of similar shape was found at Mohenjodaro also as mentioned before.[6] Agate and jasper beads covered with copper ends have also been recovered here [figure (z-2)]. At Chanhudaro lapis lazuli beads have also been found.[7] An interesting bead is of fossil scaly carpace sternum, (figure 'z-1'). Beads of faience, of steatite, agate, jasper, and carnelian of the types found at Mohenjodaro occur at Chanhudaro also. The cog-wheel, the denticulate and the fluted beads have, however, not yet been discovered at this site.

Segmented beads of faience similar to those at Mohenjodaro have also been found here.[8] As already mentioned such beads have been found at Sumer, Ur and elsewhere. Faience beads with patches of yellow pigment occur at Chanhudaro. Such beads are a speciality of Chanhudaro.[9]

Carved steatite beads with trefoil design have also been unear-

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1. Marshall—*M. I. C* pl. GXLV- 43.
2. Woolley—*The Royal Cementery* pl. 133.
3. Franfort—*Ann. Bibl Ind. Arch.* 1932 pl. I (d).
4. Mackay—*Chanhudaro Excavations* pl. LXXXI-2.
5. *Ibid*—pl. LXXV-23.
6. Mackay—*Further Excavations* pl. CXXXVI-13.
7. Mackay—*Chanaudaro Excavations* pl. LXXXI-5, 14, 20, 23.
8. Mackay—*Chanhudaro Excavations*, LXXXIII-52, 53.
9. *Ibid*—pl. LXXXII, 14-22.

thed at Chanhudaro by Mackay.[1] One such bead is illustrated here on figure 's' [pl. XXVIII.]

Small shell pieces were also drilled to form beads. Such beads were perhaps not quite popular at Mohenjodaro but they seem to have caught the imagination of Chanhudaro ladies.[2]

Bead necklaces were in fashion at Mohenjodaro culture as is proved from the skeletons unearthed by Mr. Shastri which had a necklace of steatite beads.[3]

Spacers—The number of spacers found at Mohenjodaro suggests that the necklaces often consisted of more than one string of beads. The most common of the spacers have two[4] or three holes but spacers with as many as six holes, 2·35" x ·25" x ·05" have also been found[5] [pl. XXVIII fig. (z–17)]. The necklaces worn by several of the clay figurines[6] of Mohenjodaro also seem to consist of several strings. This fashion appears to have continued to a much later date as we find a necklace with several strings at Bhir mound in Taxila.[7]

The spacers of Mohenjodaro are of several shapes. The most common is of the long rectangular strip type, of metal (Copper and gold–Marshall Vol. II p. 518) and steatite. Among these are (a)-the strip type with straight sides as seen on figures (z–17) and (z–18); (b) with round curved sides as seen on fig. (z–20) with curves opposite each hole; (c) straight on one side and curved edged on the other as seen on fig. (z–16); (d) straight on one side with angular curved edges on the other (z–19). Spacers with curved and angular edges on one side are rare at Harappa. Then there are spacers which have been made by joining together two beads as we see on the necklaces of gold beads on pl. XX fig. 'a'.

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1. *Ibid*—pl. LXXXIII, 49, 50, 51.
2. *Ibid*—pl. LXXXVI, 1–6.
3. Wheeler—Harappa. *Ancient India* (1947) No. 3, p. 86.
4. Mackay—*F. E. M.* pl. CXI–52.
5. Marshall—*M. I. C.* pl. CLIII–15.
6. Marshall—*M. I. C.* pl. XCIV–1; XCIV–14; Mackay—*F. E M.* pl. LXXV–5.
7. Young, G. M.—A new Hoard from Taxila, *Ancient India No.* 1 (1946) p. 32, pl. VII,

We also have here decorated spacers of steatite with two or three holes[1]; a triangular spacer of steatite (z-12)[2]: a disc-shaped spacer of grey steatite with two holes which meet in the middle of the disc[3] and a circular steatite plaque with concentric circles to take the inlay.[4] Faience spacers of different types have also been found. One has a beautiful turquoise blue glaze on it.[5] Its one side is serrate. Similar spacers are seen among the finds of the Badarian civilisation[6] and at Kish.[7]

Terminals—The necklace terminals found at Mohenjodaro are mostly semi-circular[8] [pl. XXVIII fig. (z-11)]. Similar necklace ends have been found in Ur[9] and Egypt [pl. XLVII]. These ends here, however, are accompanied with other pieces unlike those of Harappa as has been observed before. They used to be made out of thin strips of metal turned over and soldered. The steatite ends of similar shape used to be moulded. We have triangular and crescent-shaped terminals of steatite also [fig. (z-12)] Some of the steatite ends have wavy bases, fig. (z-13). Another type of terminal is tubular which we see on the necklaces [plate XXII]. The terminals on [pl. XXVIII figs. (z-14), (z-15)] have a broad base, thin top and are triangular in section. Terminals very much similar in shape have been found from Bhir mound in Taxila[10] which shows that such terminals in improved form were in use till a very much later date.

Often we observe that the semi-circular ends used to be followed by round beads as we see on the necklace of figure 'e' or by long tubular ends as we see on the necklace on figure 'a' [pl. XXII].

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1. Mackay—*F F M* p. 519.
2. *Ibid*—pl CXXXVI-40
3. *Ibid*—pl. CXXXVIII-32a.
4. *Ibid*—pl. CXXXVI-41.
5. *Ibid*—pl CXXXVIII-22.
6. Brunton—*The Badarian Civilization* Vol. II, pl. CIV-95F.
7. Mackay—'*A' Cemetery at Kish, Memoirs Field Museum* Vol. I, pl. XLIII-8.
8. Marshall—*M. I. C.* pl. CLI B; CXLIX-3, p. 518.
9. Woolley—*The Royal Demetery* pl. 144, 145.
10. Young, G. M.—A new Hoard from Taxila, *Ancient India, No. 1* (1946) opp. p. 32, 41. VII,

Pendants—Necklace pendants apart from composite beads already described before are of several types. One is of shell triangular in shape [fig. (z-26)] with a hole at the top in shape almost like the turquoise bead of the proto-historic China illustrated by Andersson.[1] Another one of almost similar shape with a hole in the centre is of faience fig. (z-25).

Two pendants of paste of unusual shape yellowish white in colour and 1.2" in height have been found at Mohenjodaro, [pl. XXVIII fig. (z-27)], (z-28)]. There are small lugs at the top which are pierced. There are twisted knots at toe top. The second one with four small holes at the top resembles in form with the Egyptian sign of stability *'dād'*.[1] It appears to have great affinity with the *Pavitri* worn by the *yajamāna* during the Hindu religious ceremonies. Another amulet pendant is of limestone, rectangular in shape (1.25" x ·75" x ·75") with *svastikā* and unending coil pattern[2] on it (rope pattern on a seal from Lagash).[3] Perhaps this pattern had some talismanic value.[4] There is still another pendant looking like the section of a pot (z-29). It is of shell and has at the top a knot pattern. Perhaps knots were regarded as a charm. Fraser says that its Influence is maleficent or beneficent according to the thing it impedes or hinders is good or evil.[5] Knots were avoided in Egypt[6] but not in India. We see them on the girdles of Bhārhut figurines[7] and also on the girdles of *Yakṣha* from *Pārkham*.[8]

The most interesting pendant is, however, that of a human figure (z-31) of white steatile. Here we see curly ram-horn-like head ornament with plaited hair at the back. It is a very small piece and may have represented some deity. This is rather an important find, for here it is for the first time that we get an amulet in a regular

1. Petrie—*Amulets* p. 15 pl. III; also Gardiner—*Egyptian Grammar.*
2. Mackay—*Further Excavations* pl. LXXII-3; also see pottery amulets pl. XC-23.
3. King—*Sumer & Akad* p. 174, fig. 52.
4. Marshall—*M. I. C.* p. 374.
5. Fraser—*Taboo and the Perils of the Soul* p. 310.
6. Murray, M. A—*Ancient Egypt* (1922) p. 14-19.
7. Cunningham—*Stupa of Bhārhut* pl. XXII, XXIII.
8. Agrawala, V. S.—*Handbook of the Sculptres in the Curzon Museum* etc. pl. II fig. 3.

human form. Such human figure amulets occur at Crete[1] and at Yan [pl. XLIV-B fig. (c)].

The curved bead in the form of a cresent moon [pl. XXVIII fig. (n)] may also have served as a pendant or a centrepiece. A similar bead has been found at Harappa.[2] Another similar piece appears to have been found at Kish also.[3] Another piece occurs at Ur. [pl. XLIV-A fig. (a)].

A different variety of pendants appears to have been made out of fluted beads of faience [fig. z-5]. They are tapering and coated with a glaze. When coloured they must have presented a beautiful appearance.

Chanhudaro spacers from Mohenjodaro level are almost like those found at Mohenjodaro illustrated on pl. XXXVIII fig. (1). They have a traingular terminal. Semi-circular terminals have also been found here. They are mostly flat with two or three holes.[4] Spacers with five and six holes are not noticed here. Round these holes there are circular decorations. We presume that the necklace with more than three strings had gone out of fashion in the later period of Mohenjodaro culture.

Terminals for necklaces made of faience with green glaze on them have been found at Chanhudaro. There is also a terminal of annazone stone.[5]

Pendants of beautiful designs have been unearthed at Chanhudaro. There is a pendant of dark grey steatite, [pl. XXXVIII, figure (z-3)]. There are two pendants of shell also illustrated on figures 'x' (z-4).

There is an amulet illustrated on figure 'x' which also, perhaps, served as a pendant of a necklace. It is of pottery coated with red pigment. Two amulet pendants are seen on plate XXXIII fig. (e). This pendant 'e' almost resembes the one found at Taxila.[6]

1 Pendlebury, J. D. S.—Discoveries in a Haunted Cave *L. L. N.* Nov. 28, 1936, p. 631, fig. 5.

2. Vats—*Excavations at Harappa.* pl. CXXXIX-1.

3. Mackay—*A Cemetery at Kish* p 3, 7 fig. 79.

4. Mackay—*Chanhudaro Excavations* pl. LXXX-10, 12, 20.

5. Marckay—*Excavations at Chanhudaro* pl. LXXX-22.

6. Young, M.—A New hoard from Taxila, *Ancient India No. I,* 1946.

The carved pendants of shell among the finds[1] of Chanhudaro prove clearly to what extent the craftsmanship of this locality had reached. Here, there is a carved crocodile. It is carved from a small shell piece and must have been used as a pendant. Even the bulbous end of the snout and the nostrils of the animal have not escaped the chisel of the craftsman. The legs, however, are not in proportion to the body but this is after all an idealised representation of the animal. The piece measures 2·37" in height and 3·2" in length.[2]

Breastplate and Amulets :—Curiously enough an ornament almost like a breastplate has been found at Mohenjodaro. It is of steatite, oval in shape, [pl. XXVIII–A fig. (n)]. At its widest point it is 2·7" and is 2·5" long from top to bottom. Its thickness is ·06". There is a recess round the piece to take the wire for hanging it. Evidently, it was worn on the breast hung to wire as a pendant. The carvings show that the piece was inlaid with some coloured paste. The animal represented here is an unicorn which is so common on the seals of the Indus Valley. Before the animal there is also the same type of altar which we generally see on the seals of Mohenjodaro.

The animal amulets of Mohenjodaro like Harappa are of various kinds. On figure 'a' [pl. XXXV] is a ram of vitreous paste delicately fashioned but without the head. The ram is crouching, and the hole is through the shoulders. In length it is ·97". On figure 'b' there is a bird with wings outstretched. It is of faience 1" long and has a hole at its back to thread it. It looks like a dove. On figure 'c' [pl. XXXV] there is a hare-like animal of hard vitreous paste lemon yellow in colour with traces of green. The hole is below the base of the ears. On figure 'd', there is a ram of faience with traces of apple green glaze. It is 1·02" long. Unfortunately its curved horns are missing. On figure 'e', there is a beautiful squirrel of vitreous paste turquoise blue in colour. The three stripes on the back are in brown. This animal is represented sitting and eating a fruit with both hands, a pose it often takes. As there is no hole in the piece, the string may have passed through the gap between the mouth and the hands for wearing it on the neck. On figure 'f', there is another squirrel. It is represented as sitting against a branch

1. Mackay—*Chanhudaro Excavations* pl. XC–19, 21.
2. *Ibid*—pl. XC–19.

of a tree. It has also at the back three stripes and is 1.1" high. The later connection of squirrel with *Rāma* may have been based on some early story current among the Mohenjodaro people who perhaps loved this animal. On figure 'g' of pl. XXXV, there is another ram in paste, redish brown in colour with its fleece in green sitting in a crouching position. All the details of the body have been minutely depicted here. On figure 'h', there is another ram of yellow steatite Perhaps it could not be finished. This piece clearly shows that these amulets were being manufactured locally. On fig. 'i' of the same plate, there is another crouchant ram. It is a very small piece in paste almost like a bead. On figure 'j'. there is an ibex of bronze, probably manufactured by *cire perdue* process. It may have been worn by passing a wire round its neck. On figure 'k' there is an animal described as another ram, with a collar round its neck and an upturned tail. It looks more like a dog than a ram. The pittings in the shoulders represent the holes through which it was threaded. On figure 'l,' there is a monkey of paste well finished. It has holes in place of eyes which may have been inlaid like the eyes we come across in a number of figures at Ur[1]. On figure 'm' [pl. XXXV] there is a crocodile of shell 1.6" long. It is a beautiful piece with its teeth represented by rough incised lines. On figure 'n', there is a turtle of shell nicely finished while on figure 'o', there is another ram of faience pierced longitudinelly. On figure 'p' [plate XXXV] there is a bull mastiff of steatite. Its eyes were also perhaps inlaid. Similar bull mastiffs are seen in Babylonian and Assyrian arts[2]. On figure 'q', there is a hare of calcite. It is represented in a running posture. On figure 'r' of the same plate there is a parrot of vitreous paste which looks almost as if it is made of opaque glass. Its eyes were also probably inlaid. It is .9" long. The ram was perhaps a sacred animnl among the people of the Indus valley as it was for the Egyptians[3]. Its later replicas have been found at Taxila as mentioned before[4]. Several similar amulets of various animals have been found at Mohenjodaro. Perhaps like Egypt the people of the Indus valley also believed that magical potency of beads was enhanced by carving them into amulets[5]. Similar animal amulets

1. Childe—*A New Light on the Most Ancient East* pl. 1.
2. Marshall—*M. I. C.* p. 348.
3. Marshall—*M. I. C.* p. 348.
4. Beck—*Beads from Taxila* pl. VII-10
5. Childe—*A New Light on the Most Ancient East* p. 71

have been found in pre-dynastic Egypt, in Sumer of fourth mellennium B.C, and in Crete of minion II period[1]. Animal beads of semi-precious stones and precious stones are still worn in some parts of India. e. g., ram for *mesa rāśi* (Aries) fish for *mina rāśi* (Pisces) and bull for *Vṛṣa rāśi* (Taurus) etc.

We are not quite sure if the steatite seals found at Mohenjodaro and at other sites of the Indus Valley, Gujrat and Punjab were worn as amulets. Almost as many as 1200 are recorded.[2] Generally they have a perforated boss at the back which may have been used for threading them, though recently at Lothal sealings in clay from seals of this type have been found.[3] Square in shape they are miniature masterpieces of art. The intaglio design on the seals includes a wide range of animals such as unicorns, elephants, bulls, rhinoceroses etc., almost always associated with a group of semi-pictographic letters. Some also have designs like *svastika,* multiple squares, crisscross pattern,and multiple cross,[4] while others bear human and semi-human forms with scenes which may have been of a religious nature.[5]

The three sided seals which we come across here probably were used as amulets. Some of these scenes are illustrated on pl. XXVIII figs. (o), (p) & (q). On one side of this three sided prism-like seal on [pl. XXVIII] figure 'o' almost 2.7' x 0.5" there is an animal, with its tail up resembling a tiger and a man on the tree, a dog-like animal which is seeing backwards and running away, also a *Svastika* and an elephant. On the other side on figure 'p', there is an unicorn-like animal with an altar before it. There are two men behind this animal and six pictographic letters. On the third side illustrated here, [figure (q)] there is a human figure in between two parts of a tree perhaps a pipal tree. In the centre, there is a goat-like animal decorated with ornaments on the neck, perhaps prepared for being sacrificed. On the left there is another horned human figure towards whose back there is a table with some edibles.[6]

1. Marshall—*M. I. C.* Vol. II, p. 579
2. Wheeler—*The Indus Civilization* p. 76
3. Ghosh, A.—*Indian Archaeology* 1856-1957, a. 15.
4. Wheeler—*The Indus Civilisation* p. 76.
5. Mackay—*F. E. M.* Vol. I, p. 336, 337, 361; Vol. II, pl. XGVI-510; c III-8; pl. LXXXVIII-279 etc.
6. The splitting of the tree here reminds us of the *Yamlarjano* story of *Bhagwata,* which may have been based on some earlier anecdote of a similar nature coming down from ancient times.

Comparable to these are some of the copper tablets which were also perhaps used as amulets. They generally have pictographic letters on one side and an effigy of an animal on the other. The animals include the elephant, the unicorn, the buffalo, the tiger, the rhinoceros, and the hare.[1]

It is interesting to note that the designs on the amulets of the Indus Valley and the symbols on the beads have their meanings like their counterparts in Egypt.[2] We get them in the Indus Valley beads in the form of teeth which may have been worn to protect one from the mad dog's bite.[3] We also get heart-shaped pendants[4] which may have been worn to avoid heart disease. Then we have fish shaped amulets,[5] which may have been worn for fecundity. Beads carved with trefoil designs may have been made similarly to protect the wearer from all physical injury.[6] Amulets bearing figures of Gods in the same way may have been employed to obtain divine protection.[7] The animal amulets were perhaps fashioned under the belief that the pet animal would receive the first attack of the enemy and thus protect the wearer from phyical harm as mentioned before.

The belief in the magic effect of the inanimate objects on the course of human affairs is often the result of an incapacity for clear reasoning about the cause and effect of various happenings in this world. It has resulted in the creation of shapes and forms which exhibit our fears and a search for quick methods of averting misfortune and pain. The artists in the employment of man have always tried to hide these fears and hopes by enclosing them in beautiful garbs.

The neck ornaments on red painted clay figurines from the lower levels illustrated by Mashall and Mackay show that the women of Mohenjodaro generally wore three ornaments on the necks, a choker one necklace descending down to the collar bone and the third one

1. Wheeler—*The Indus Valley Civilizations* p. 81; Mackay—*Further Excavation at Mohenjodaro* p. 364.
2. Petrie—*Amulets* p. 2.
3. Mackay—*Further Excavations* pl. CXI–21, 22.
4. Vats—*Excavations at Harappa* pl. CXXXVII–8.
5. *Ibid*—pl. XCV–428; LXXVII–20.
6. Marshall—*M. I. G.* p. 575.
7. Vats—*Excavations at Harappa* pl. CIII–305, 318, 319.

covering the breasts as is seen on [pl. XXXI] figurines 'e' and 'i'. All these pieces appear to have been made out of strips of metal and beads. The exceptions to the rule are figurines 'g', & 'h', which are shown wearing five necklaces, and the figures 'd', 'f', 'k' and (1) [pl. XXXI], who wear one to two. The figurines of the upper levels wear one to two necklaces figs. ('a', 'b', & 'c'). Clay figurines wearing three to five necklaces have been found in Babylonia. They belong to the first dynasty of about 2400 D. B. C.[1]. The males of the upper[2] as well as the lower levels[3] only have chokers on their necks.

On figure 'a' [pl. XXXI] we see a choker made of a strip of metal with three beads hanging to it in the centre. This figure is from the upper level. On figure 'b' a slightly different kind of choker is seen. It consists of no beads hanging to it, and looks almost like our *gope* or *musi* of today.[4] On figure 'c' the same type of choker is seen, but there are four pendants attached to it. Both the figures 'b' and 'c' are also from the upper levels like figure 'a'.

On figurine 'd', there are two neck ornaments. One is a choker made of a strip of metal with beads attached to it as is seen on other figurines and the other is a round or oval collar like our *hansulī* descending almost up to the breasts. On figure 'e' of pl. XXXI, the three regular neck ornaments are seen. The first is a choker directly on the neck with several pendants of long beads. The second is a collar with several strips of metal joined together to which is attached a circular disc in the centre. The third is necklace of metal strips, having incised decorations. It extends up to the breast and ends in point. There is no pendant in this necklace. On figure 'f' we see a thick collar of flattened round metal ring which fits snugly on the neck. On figure 'g' we have five neck ornaments, four of which are necklaces consisting of strips of metal with pendants of long bi-conical beads. The fifth consists of two strips of metal with an oval bead in the centre. The strip of metal is ornamented with dots. These five necklaces together do not go much below the breasts. On figure 'h' [pl. XXXI] however, the last necklace extends up to the nevel. These necklaces are all made

1. *British Museum* Vos. 11684, 127422.

2. Mackay—*Further Excavations* pl. LXXIII–1, 8; LXXIV–23 (a barbed figure).

3. *Ibid*—pl. LXXV–3.

4. *Marg* Vol. VI–1. 1952, p. 61.

up of plain strips of metal and oval beads. On figure 'i' we see three necklaces. The first is a choker of large beads the holes of which are also visible and the second has a strip of metal and a rectangular pendant which reminds us of the turquoise bead on [pl. XXII] fig. 'b'. The third has three beads attached to a strip of metal as pendants. On figure 'j' we find several necklaces in the form of rings covering the neck and the collar bone very much like the necklaces on the clay figurine on [pl. I] fig. 'f'. There is another necklace which goes over these rings, the lower ends of which do not meet each other. Perhaps this was worn to keep the other necklaces in their place like the ornament on the clay figurine illustrated by Coomaraswamy[1] and known in Sanskrit as *channaviva*[2]. On figure 'k' we see light jewellery. There are only two necklaces. the first is a choker with a strip of metal and pendants of oblong beads and the second consists of only a plain strip with a central oval drop-like bead. On figure 'l' again we see two necklaces of the same variety as we do on figure 'k'. The only difference is that second necklace has two strips of metal instead of one. Perhaps, tired of wearing a number of necklaces the fashionable women must have taken to simplification of neck ornaments. On the bronze dancing girl only one simple necklace is visible.[3]

Here we have some other forms of necklaces seen on the clay figurines of Mohenjodaro [pl. XXXII]. The figurine 'a' has three chokers on the neck, all composed of beads, not unlike the chokers on the figurine of painted potsherd of pre-historic China.[4] The fourth necklace consists of a strip of metal. Its details cannot be seen as only a portion of it is visible. On the neck of the bronze dancing girl, figure 'b' only one necklace is seen as has been mentioned before. It consists of two strips of metal. It has three leaf pendants artistically arranged. The necklace is simple yet quite beautiful. On figure 'c' we see two chokers, one is of round metal ring and the other is composed of round bead pendants. The

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1. Coomaraswamy—Archaic Indian Terracottas, *Marg* Vol. VI, No. 2 (1952), p. 22, fig. 1.
2. Rao, G. N.—*Elements of Hindu Iconography* pl. XXXI.
3. Marshall—*M. I. C.* pl. XCIV–6, 7, 8.
4. Andersson, J. C.—*Researches in the Pre-history of the Chinese, Anthramorphic designs* pl. 183–1.

third necklace which comes up to the breast consists of a strip of metal ending in a point.

A similar necklace is seen on pl. XXXI fig. 'e' but here it is unornamented. On figure 'b' only a collar is seen. It is made of plain flattened sheet of metal with its one end put in a socket which is visible on the right side of the clay figurine.

On plate XXXII figure 'e' there are two chokers one of which with pendants below the neck of the collar bone is threaded perhaps with a wire. Figurine 'f' wears heavy neck jewellery almost like the figurine 'h' on plate XXXI. There are three chokers of metal rings and five necklaces of beads with a sixth on the top of all these. This one looks almost like the chain of the *Order of Garter* with raised circular ornamentations on its surface. There is a big raised circular piece in the centre. The ornaments on this figurine suggest that she represents either the queen or the main deity of the city. On figure 'g' we see one choker and a necklace with beads hanging from it. The arrangement of necklaces on these clay figurines leads one to the conclusion that each of these figurines must have been made separately.

The figurines unearthed from other sites of Mohenjodaro culture also have similar ornamentation on their necks. The figurine 'b' [pl. XXXVI], found at Chak Purbane Syal has a necklace on the collar bone with pendants. The two figurines found at Lakhiyo 5 from a depth of about 6′ are illustrated here on figs, 'n' and 'o'. The clay figurine 'n' wears a necklace having three round disc pendants. They appear to be suspended to two metal strips on the neck.

Here we have also some of the neck ornaments of Chanhudaro figurines [pl. XLI]. On figure 'a' we see only a part of a necklace. It looks as if the other part has been chipped off. This choker looks as if it is of metal, perhaps gold. decorated with incised dots. If there was a pendant attached to this necklace, it is now missing. On figure 'b' we come across a composite choker. Two strips of metal perhaps of gold appear to have been flattened and soldered together to form a collar. Below the collar there appears a necklace of small steatite beads. Perhaps these beads are of the same variety as were found by Mackay in the bead shop.[1] On figure 'c' is seen another necklace or choker of large oval beads. There is no other

1. Mackay—*Illustrated London News*, Nov. 14, 1936 p. 864.

neck ornament on this figurine. On figure 'd' is another kind of necklace of a metal strip. It looks as if the strip was just flattened and handed over to the customer to be worn as a necklace. It is of V shape. A similar necklace is seen on a figure from Mohenjodaro.[1] Both of these are male figures. On figure 'e' we see another type of choker necklace. It is composed of round beads. On figure 'f' [pl. XLI] there are two ornaments. On the neck there is a choker and below it there is a necklace. It appears to have been manufactured out of a flat strip of metal. It is of V shape. On figure 'g' there is a necklace composed of incised strip of metal to which is attached a decorated oval pendant. Some of the figurines here [pl. XLI] appear to be of Jhukar Culture, especially those with a choker.

Jhukar Culture—Some of the beads found at Mohenjodaro may be of Jhukar culture but nothing can be said with any certainty due to want of positive stratigraphic recording of each type of bead. The Shahi-Tump culture resembles with that of Jhukar in more ways than one; similarity in shaft hole axes[2] and seal design between the two is striking.[3] Sir Aurel Stein found from that site a number of beads and other neck ornaments. There is a large cemetery at this site. At the neck of a dead body a copper disc ornament was found which is illustrated here on pl. XXXIX fig. 'u'. It is decorated with raised arcs of a circle and in the middle there is a dented rectangle. Near the neck of another dead body nineteen beads of agate, two of onyx and one of lapis lazuli were found. One bead of onyx is illustrated on figure (v) These beads evidently formed a necklace. Seven beads of stone and a bone bead found near the breast of the body[4] may also have formed another necklace. Fragments of copper and a bone bead were found in another grave.

Along with another body was found a copper disc pendant which has a decoration of concentric circles, [pl. XXXIX, fig. (y)]. The decoratton on this disc differs from that found on the ornament on figure 'u'. On the breast of a child a copper disc was found round

1. Mackay—*Further Excavations at Mohenjodaro* pl. LXXXV–13.

2. Sir Aurel Stein—Arch. Surv. of India. *Memoirs 43* pl. XIII sh. VII, 135 and Mackay—*Chanhudaro Explorations* pl. LXXII–25.

3. Sir Aurel Stein—*Ibid.* pl. XIV sh. 1. II–20; Mackay-*Chanhudaro Excavations* pl. XLIX–2; L–7.

4. Stein—*Ibid* p. 98

in shape, 4″ in diameter with a decoration of concentric circles and a raised stud in the centre [pl. XXXIX fig. (z-3)].

From the ramparts of Harappa Wheeler has discovered several beads of the post rampart period.[1] These beads may be of the early Jhukar period. Some of the old types must have been still in fashion when the new people arrived.

Of the post-rampart period, we find here thin steatite disc beads circular in shape [pl, XLII-A fig. (c)] similar to the disc-shaped bead of the period contemporary with the ramparts. Steatite beads oblong, cylindrical in shape, (fig. 'i'), and segmented faience beads, (fig. 'e'), similar to those seen at Harappa and Mohenjodaro have been found from this post rampart level. Faience beads of standard barrel shape circular in section with and without oblique incised lines are seen here on figs. 'k' & 'g'. Beads with incised lines have been found at Chanhudaro from Jhukar level[2] [pl. XLII fig. (r), (x), & (y)]. Faience double convex circular beads have also been found from this level, (fig. 'a'). We come across here an etched carnelian bead on fig. 'd' also, but its markings are different from those seen at Mohenjodaro and Harappa. An agate bead of long barrel shape has also been found from this level, (fig. 'f'). Similar thin discoid beads of steatite as seen on fig. 'c' from Harappa were found by N. G. Majumdar from Chanhudaro, (fig. 'n'), and similar plano convex beads of the same material. fig. 'l', were also found at Chanhudaro. The etched carnelian bead,[3] however, belongs to the Mohenjodaro period. The barrel shaped carnelian bead, on fig. 'm', looks almost like the barrel shaped etched carnelian bead found by Wheeler described above. At Zangian, a site comparable with Shahi Tump, several stone beads have been found.[4] Its affinities whith Shahi Tump are quite pronounced, for here a sword with bronze handle has been found.[5] Discs of shell also occur here which used to be threaded and worn in the necklaces.[6] They all appear to be of Jhukar culture; the stone beads and the discs of shell. These shell discs are more

1. Wheeler–Harappa—*Ancient India No. 3* Jan. 1947, p. 123–124.
2. Mackay—*Chanhudaro Excavations* pl. LXXXVII–2, 3, 4 etc.
3. Majumdar—*Arch. Surv, of India. Memoirs 48* pl. XVII–25.
4. Sir Aural Stein—*Arch. Surv. of India. Memoirs 43* p. 86;
5. *Ibid*—pl. X–II, VIII.
6. *Ibid*—pl. X–II, VII.

finished than those found at Chanhudaro though it is possible that the Chanhudaro examples may also be of Jhukar Culture.

On plate XLII-A figures 'u', 'v', 'w', 'x', 'y' & 'z', we see the same type of bead for necklace found at this level from Chanhudaro by Mackay as we have already seen on pl. XLII figs. 'r', 'x', & 'y' but with different markings. The beads of this culture are less carefully worked and bear rough incised marks. The paste core is gritty and is covered with a thick coating of glaze. The fish scale marking we see here on the greenish blue beads on figs. 'u', 'v' etc. are not seen on similarly shaped beads of Mohenjodaro and Harappa. Another type of coiled bead is seen on figure 't'. Such beads appear to have been shaped by hand, and lack the finish we see on paste beads of Mohenjodaro. Originally they appear to have been of deep green colour which has now become very faint. The pottery beads found here appear to have belonged to girdles and will be described in the chapter relating to that ornament.

From Jhukar N. G. Majumbar has found beads of green felspar, Jasper agate, lapis lazuli and flint which appear to belong to the Mohenjodaro culture. The beads of steatite ·3· to ·5' in diameter, however, may be of Jhukar culture[1] and similarly the faceted steatite beads square in section on pl. XLII-A fig· (o) may also be of the same culture. From the upper levels of Lohumjodaro he has found a steatite bead of greenish colour, biconical in shape incised with concentric circles [pl. XLII A (p)]. Its length is ·65" and diameter ·95". Round steatite beads discoid in shape also found by him are illustrated on fig. 'r' along with a cylindrical vitreous paste bead on fig. 's' and a fragment of long barrel-shaped carnelian bead on fig'q'.

Besides the beads, a number of amulets and pendants were found by Mackay at Chanhudaro from Jhukar level [plate XLII]. On figure 'a' is seen a pottery amulet with three linear depressions and two holes at the top to hold the ornament to the string. On figure 'b' there is a faience amulet (only half the piece of this ornament was found). It has well grooved conventionalised engraving of a deer on its face. On figure 'e' there is an amulet of pottery, on which there are two deer running one after the other and conventionalised cloud effect at the top. On the amulet shown on figure 'd' there are small circular depressions arranged in a decorative pattern perhaps

1. Majumdar—Explorations in Sind. *Arch. Surv. of India, Memoirs 48* p. 13.

to represent the lotus fruit. On figure 'e' there is a stone amulet with a deer clearly marked out. At its back there is a design representing leaves suggestive of the jungle. On figure 'f' there is a faience amulet. Here some deity is seen standing. It is oblong in shape. Another faience amulet decorated with arcs of concentric circles and a rectangle in the centre is seen on figure 'g'; while on figure 'h' a design of a knot is visible on a pottery amulet. A similar decoration is seen on a little seal of the Imperial Period[1] The amulet on figure 'i' has two animals one above the other and a third at the bottom all depicted parallel to each other. A similar method of scene depiction is seen at Sumer[2] also. On figure 'j' we have three crosses and four triangles perhaps representiag four cardinal directions. On figure 's' we have arcs of four concentric circles on four sides and a rectangle in the centre[3].

On some of the clay figurines of Chanhudaro which appear to belong to Jhukar Culture we see chokers of large round beads [pl. XLI figs. (e) and (f)]. On figurine 'c' a choker of large oval beads is visible. Except on the neck of figurine 'f' which wears a necklace of strip of metal in addition to a choker, there is no other ornament on the other figurines except a choker. On figures 'j' [plate XL] no neck ornament is apparently visible. It, therefore, appears that the people of this culture had given up wearing much jewellery on their person.

Jhangar Culture—The Jhukar culture announced the advent of a new people and a break from the great tradition which marked the Mohenjodaro and Harappa Cultures. The Jhangar people who followed on the heels of their Jhukar predecessors have left only a few pieces of ornaments. These people who used grey incised ware used to wear beads an example of which Mackay has found at Chanhudaro [pl. XLII fig. (z)]. It is of pottery, 1·62″ long and 1.51″ in diameter green in colour. It bears slanting linear decoration on it.[4] A similar bead of pottery was found by Majumdar with seven types of decoration from Otmangi Buthi [pl. XLII A fig. (z–2)]. Another bead from Khajur with incised strokes (fig. 'z–3'). and a third from Lakhiyo with parallel double lines; (fig. 'z–4')

1. Ward—*The Seal Cylindrical Western Asia* p. 269 No. 802.
2. Childe—*The most Ancient East* etc. pl. I–158.
3. Comparable with that on pl. XXXIX fig. (z) from *Shahi Tump.*
4. It reminds one of the design of *dholaka* with its striags strung over it.

have also been found by him. Other similar beads have also been found by him at Arabjo Thano[1] and from and Otmanji Bhuti.[2] These finds show that the Jhangar people were spread far and wide. They did not come and settle down only at Chanhudaro.

This survey of the neck ornaments of the Indus Civilization leads us to presume that originally people used to put on a flat strip of shining metal as a necklace as we see on the necks of some Zhob Valley figurines [pl. V fig. (d)]. Later they began to decorate such pieces with designs and add beads as pendants as we see on the necks of Mehi figurines, [pl. VII fig (1)]. Necklaces composed of all stone beads appear to have originated later. They should have been evolved from necklace of berries, stone beads replacing the perishable berries. The joining of several beads to form one pendant or etching the beads to decorate them (examples of which we find at Harappa and more commonly at Mohenjodaro) must have occurred to the Jewellers much later. Similarly it appears that from animal shaped amulets the disc amulets, with animals carved on them were developed. Such appears to be the story of the development of neck-ornaments here. Though it cannot be denied that each culture has its own sequence of development yet broadly speaking the Quetta culture can be divided into three phases, Amri into one, Nal into three, zhob into two, Kulli into two, Harappa into three, Mohenjodaro into four and Jhukar into two.

1. Majumdar—Arch. Surv, of India *Memoirs* 48 p. 136 pl. XXXIII-63.
1. *Ibid*—p. 141, pl. XXXIII-71.

CHAPTER V

ARMS AND WRIST ORNAMENTS

It appears that the wrist and the arm ornaments in the Indus Valley Civilization mostly consisted of bangles of metal, faience, shell and terracotta as they did in other parts of the civilized world of those early days.[1] Some men perhaps wore a band with a disc to cover their arms as we see on the arm of the bearded figure from Mohenjodaro [pl. XXXIII fig—(a)]. The number of bangles collected from different sites of the Protohistoric India is quite large, but stratigraphic records are wanting in many cases, especially in the case of pottery bangles. From the point of view of art and archaeology the pottery bangles are of considerable importance as it is from these that influences foreign and otherwise can be easily traced out. Being brittle they break more often than their metallic counterparts and are replaced by newer ones of newer fashion after short intervals If we study their development during the last hundred years in India we see that the bright red and green shellac bangles which were once fashionable have completely disappeared, yielding place to glass bangles of different designs, colours and ornamentations. The glass bangles are also being now replaced by plastic ones. In our modern world each year has its fashion of bangles. The clay bangles of the Indus valley which were the precursors of the modern glass bangles can thus furnish valuable archaeological data, and also supply us the points of contact with the other parts of

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1. *Mackay—'A' cemetry at Kish.* Vol. I pl. XX-14A; Vol. pl. LIX-23 Wooley—*'A' Sumerian palace.* pl. 147; 17913; 17912; Macquenem-Antiquity V. (1931) p. 337 pl. 3-7; Arne-*Shah Tepe* p. 297. pl. XCII-8.

Schemidt—*Hissar* p. 120, Hissar II pl. XXV H-2167; Hissar III pl. LIII. H. 4262, 4263; Anderson, J. G —*Researches in the Pre-History of the Chinese.* Bull. 15, 1943 p. 90 pl. 48-2, 4. Mallowan—Sumerian Contacts in Syria some 4000 years ago, bangles from Brak—*I. L. N.* Jan. 15, 1938, p. 92 fig. 1.

the civilized world in that particular period. From the development of their forms and ornamentation much material can be gathered.

It looks that the bangles with a diameter of about 4″ were worn on the arms and those with diameters less than 3·9″ on the wrists. We are, however, not quite sure as to what these bangles were called by the people of the Indus Valley. We get the evidene of bangles being worn on the wrists from Harappa and Rupar. At Harappa a skeleton from cemetary H. Stratum II has been found with a bangle of faience on its wrist.[2]

Quetta Culture—No bangle fragments are reported from the recently excavated sites of the Quetta Culture I and II. The figurines found from Damb Sadat[3] and other sites are mostly armless. Only on the arm of the figurine [pl. I fig (c)] of Deh Morasi[4] do we find an indication of two armlets on two arms.

Amri-Nal Culture—From Amri N. G. Majumdar has found twenty five pieces of bangles of terracotta[5] [pl. II fig. (b)]. It is possible that these may be of the earlier level though recoverd from the upper level. Some of them are white in colour and some have blotches of chocolate on light red background.[6] All these pieces are glazed. Chank bangle fragments were also found here from the upper levels. From Ghazi Shah Majumdar found terracotta bangle fragments (flat and round) with the same type of chocolate bloch ornamentation.[7] The diameters of these pieces are between 2·5″ to 2. 8″.[8] A copper bangle fragment[9] has also been found from this site [pl. II fig. (e)]. Its diameter is 1·6″. From Sah Hassan a chank bangle has also been found.[10] From Lohri a vitreous paste bangle piece has been found. Its diameter is 1·8″.[11] A copper piece found here may

1. Wheeler—Harappa—*Ancient India No* 3 p 86 footnote.
2. A. Ghosh—*Indian Archaeology* (1954-55) p 9.
3. Fairservis—*American Museum Nomates* p. 13.
4. *Ibid*—p 23.
5. Majumdar, N. G.—*Arch Surv India Memoirs* 43 p. 33 pl. XVII-12.
6. They are preserved in the National Museum Delhi,
7. Majumdar—*Arch. Surv. India Memoirs* 48 p. 33-Pp. 230-232.
8. *Ibid* -p. 102 pl. XXXIV-4.
9. *Ibid*—p. 103 pl. XXXIII-50.
10. *Ibid*—p. 73.
11. *Ibid* 75.

be the part of a bangle.[1] From Dhal where Amri type of potsherds have been found a chank bangle fragment has also been discovered. Its diameter is approximately 3·2″[2].

Sir Aurel Stein records only one piece of decorated clay bangle which he found from Nandara.[3] It has a wavy edge and is ornamented with linear decorations on the sides. From Nal Hargreaves has recovered 58 small pieces of shell bangles scattered all over in the grave area.[4] Shell bangles occur at Sutkagen-dor in great numbers and it is possible that the Nal pieces may have come from this site which is very near the sea. The Nal bangle fragments have lost their shine and look like dull paste bangles. They have an outer diameter of 47 mm. and inner one of 36 mm. From these finds we can say that clay bangles bearing coloured bloches, copper bangles, and chank bangles were in use in the Indus Civilization from the very early times. From Dumb Bhuthi which equates with Nal, clay and shell bangles have been found.[5] The terracotta specimens have bloches of red on light reddish ground.

The distinctive ornamentation of Amri-Nal culture on clay bangles appears to be bloches of chocolate on light red background.

Zhob Culture—From Periano Ghundai, Dabarkot, Kundani Moghul Ghundia and Sur Jangal of Zhob valley culture, metal and clay bangles were found by Sir Aurel Stein.

From the mound of Periano Ghundai fragments of clay and bone bangles were found[6] [pl. IV fig. (h)]. The clay bangles have worn-out edges and are of grey colour.[7] Some fragments of black glass bangles have also been found here.[8]

From Moghul Ghundai a silver bangle with adjustable ends was found [pl. IV fig. (f)]. The piece is remarkable for this period[9]

1. *Ibid*—p. 75.
2. *Ibid*—p. 127.
3. Stein—*Memoirs 43* p. 141–pl XXVI–5a nun.
4. Hargreaves—*Memoirs 35*. p. 41.
5. Majumdar—*Op. Cit. 48* p. 120
6. Sir Aurel Stein—*Archaeological Survey of India Memoirs 37* p. 38 pl. IX p. w. 8.
7. *Ibid*—p. 38 pl. IX p. w. 14, 15, 16.
8. *Ibid*—p. 40 p. s. w. e. 20, 22, 29.
9. *Ibid*—p. 47 pl. XII m. v. 1.

and may be of a later period. In form, however, it looks almost like the copper bangles found at Kish.[1] Grey-coloured clay bangles were also found at this site. From Sur Jangal also bone bangles fragments were found.[2] Fragments of black glass-bangles are reported from Dabarkot.[3] A bronze bangle was found at Kundani.[4]

On the arms and wrists of clay figurines of Zhob culture very few bangles are seen as most of them are armless. On the wrist of figurine found at Dabarkot coated with plaster and red colour[5] we, however, see five bangles [pl. V fig. (g)]. We can, therefore, conclude that bangles used to be worn on the wrists and clay and bone bangles were in fashion along with copper bangles in these areas.

Kulli Mehi Culture—A bangle of very dark glass was found from one of the rooms at Kulli by Sir Aurel Stein.[6] It is ornamented in relief with different colours. It was manufactured at this site and shows a high standard of workmanship,[7] Strangely enough, a couple of the fragments of bone bangles [pl. VII figs. (g) and (k)] were also found along with the glass bangles. Glass bangles of this type were also found at Sutkagen-dor[8] and Mehi. It appears that this type of glass bangle was being manufactured at one of these sites and was then being passed on through trade channels to other places The Sutkagen-dor example has three layers of cobalt blue, brown. and yellow fused together and is decorated with a row of small raised dots in black. Similar bangles have been found from the pre-historic mounds of Seistan desert.[9] These bangles must have been costly and therefore, did not replace their pottery counterparts. From Sutkagen-dor clay bangles of red colour and half a dozen specimens of grey ones were found along with glass ones[10].

1. Mackay—'*A' Cemetry* Vol. II pl IX–22.
2. Stein—*Memoirs* 37 p. 75
3. *Ibid*—p. 61.
4. *Ibid*—p. 42. pl. XIII-k 15
5. Sir Aurel Stein—*Arch Surv of India Memoirs* 37 pl. XVI-D. n v i-1.
6. Sir Aurel Stein—*Arch. Surv of India Memoirs 43* p. 123.
7. *Ibid*—p. 123.
8. *Ibid*—p. 63, pl. VI–su. 12a.
9. Sir Aurel Stein—*Innermost Asia* II p. 963–967.
10 Sir Aurel Stein—*Memoirs 43* p. 64.

From Mehi, however, several pieces of copper bangles[1] were found along with fragments of glass bangles. Three of these copper bangles are complete and appear to have been made of rounded copper bars (pl. VIII. figs. (o), (p) & (q)]. Fragments of glass bangles found here also[2] bear decoration as seen on the Kulli example. Between the Zhob Valley black glass bangles and these bangles there is a distinct connection. They appear to have developed from the older versions found in the Zhob Valley.

Unlike the Zhob figurines several of the clay figurines found at Mehi and Kulli have bangles on the wrists and arms[3] [pl. VII figs (g), (h), (i)] and [pl. VI fig. (g)]. The masculine figures[4] [pl. VII fig. (c) and (h)] here appear to have two bangles on the wrist while the female figurine[5] on [figure (g) pl. VII] appears to have four bangles on the wrist [pl. VII fig (g)]. The female figurines in addition have three to four bangles on their arms also.[6] The Bronze figurine found at Mohenjodaro and described as having come from Kulli[7] has very many more bangles on its arms and wrists than the Kulli figurines. Stylistically from the point of view of ornamentation, the dancing figure has no affinity with Kulli figurines. Some of the bangles[8] on these clay figurines appear to have ornamentation also on them [pl. VII fig (k)] During the Kulli-Mehi phase it appears that copper and decorated glass-bangles were in fashion and both men and women wore them.

Harappa Culture – Bangles from Harappa have been found in practically all materials known to the people of this Civilization except stone and ivory. In the hoard[9] from the courtyard of room '2' a hollow armlet[10] of gold sheet tapering at ends with a thick

1. Stein—*Memoirs 43* pl XXXI–Mehi I, 8, 2; pl. XXXII–Mehi III, 6, 6; Mehi—III, 6, 7.
2. „ „ „ pl. XXXII–Mehi II–2, 3, a.
3. *Ibid*—pl. XXXI, Mehi I, 3, II 5, 1; III, 5, 3; III, 2, 2, pl. XXII–k v–vii, 3
4. *Ibid*—pl. XXX Mehi II, 10, 2a; Mehi I, 3, 4a etc.
5. *Ibid*—pl. XXX Mehi III, 1, 7; Mehi III, 5, 1 etc.
6. *Ibid*—pl. XXXI Mehi III. 5, 1; Mehi III, 1, 7.
7. Marshall—*M. T. C.* pl XCIV–6; Piggott—*Pre-Historic India* p 187.
8. Stein—*Ibid*—pl. XXXI–Mehi III, 2, 2.
9. Vats—*Excavations at Harappa* p. 63–65.
10. *Ibid*—p. 63 pl. CXXXVII–14.

centre has been found [pl. VIII fig. (b)]. The edges of this piece curve inwards. The line of joint is not soldered; perhaps the edges may have opened out while heat was being applied to remove the core matrix for converting it into gold. The diameter of the pieces is 3·5″. There is a pin hole at each end which suggests that it was to be attached to some other ornament;[1] but it is just possible that it was made to test if the armlet was of solid gold, a quick method which is often adopted even now by goldsmiths ignorant of the principle of Archemedes. Armlets of similar form have been found at Mohenjodaro also.[2] On figure 'a' there is a hollow elliptical shaped bangle of gold.[3] Its diameter is 2¼″. On figure 'c' there is a bangle of silver sheet oval in shape.[4] It was found highly corroded. A Copper bangle with two overlapping copper wires slightly oval in shape and made out from a rectangular bar, has also been discovered by Vats.[5] Its diameter is 2·1″ x 1·8″. Coiled bangles of copper wire have been found at Kish,[6] Hissar[7] and at Shah Tepe.[8] Other specimens of smaller size made of round bars have also been discovered.[9] Gold bangles were actually in use till a later date as is seen from a female skeleton with a gold bangle on the left wrist[10] found in cemetry H stratum II.

Bangles of faience, shell, steatite and pottery were equally popular and were perhaps worn like the glass bangles (*Cūrīs*) along with metal bangles (*Kaṛā, Kangana* etc.) as is done even today.

Bangles of faience are either plain or incised with linear patterns. Some of them are of Cogwheel shape. Bangles of yellowish green faience have also been found [pl XI–A fig (a) (b) and (c)]. On the bangle piece on fig 'a' oval in section there is a V shaped decoration lengthwise, while on the piece on fig 'b' there are triple 'V's.

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1. *Ibid*—p. 63.
2. Marshall—*M. I. C.* pl. DLIA 2, 3, 9, 10
3. Vats—*Excavations at Harappa* pl CXXXVII-1.
4. *Ibid*—p. 65.
5. *Ibid*—pl. CXXV-60.
6. Mackay—*'A' Cemetry at Kish Vol. II* pl. XLIII 9.
7. Schmidt—*Hissar* II pl. XXA–H 2167.
8. Arne—*Shah Tepe* pl. XCIII-8.
9. Vats—*Excavations at Harappa* pl. CXXV-59, 61.
10. Wheeler–Harappa—*Ancient India* No. 3 (1947) p. 86 (footnotes).
11. Vats—*Excavations at Harappa* pl. CXXXVIII-2, 3, 11, 12.

There is vertical decoration on one fragment which is oblate in section. The piece on fig 'c' is circular in section almost plain. On figures 'r' and 'u' there are two pieces of faience bangles heart-shaped with cogwheel edges, perhaps of the latest period. Similar heart-shaped bangles of faience without cogwheel edges have been found at Rupar also.[1] On figures 'd', 'e', 'f' and 'g' [pl. XI-A] there are bangles of steatite, oblong and plano convex in section, ornamented with linear designs. The designs appear to have been cut on the pieces before firing them. Except the piece on the figure 'k' the other pieces on [pl. XI-A] are bangle fragments of faience, bluish-green or white in colour. On bangle fragments of figures 'h', 'j', 'm' and 'o' V shaped ornamentation is visible, while the bangle on figure 'h' appears to have been moulded. The bangles on figures 'd', 'g', 'i' and 'q' have oblique and curved lines. The average diameter of these bangles is 3·7". It is possible that some of these with wider apperture than 3·5" were used as armlets. On figure 't' there is a piece of thorn-designed bangle while on figure 'v' there is a bangle with raised arcs of circle.

On plate XI-B are some clay bangles found at Harappa. These bangles are all polished and coloured and must have been worn in place of *Churies*. On figure 'v' there is a bangle[2] with frilled rim in the shape of a cogwheel. Such bangles in grey clay have been found at Machiayo site of Kanser also.[3] On figure 'VII' [pl. XI B] we see two grey coloured bangles pressed to form one piece.[4] This simple method of evolving a new shape of the bangle appears to have originated at a later period. This piece appears to be the precursor of the similarly designed piece of the Jhukar period.[5] This type of bangle is not at all common on this site. On figure 'IX' there is a bangle which has flat corrugated outer surface.[6] On figure 'I' there is a circular bangle grey in colour and that on figure 'II' is rectangular in section. They all have perfect finish.

1. A. Ghosh—*Indian Archaeology* (1954-55) p. 9 pl. VIII B 3.
2. Wheeler-Harappa—*Ancient India* No. 3, 1947-pl. LIII-B-3. Vats-Harappa—CXXXVIII-4.
3. Anderson—*Researches in the Pre-history of the Chinese* p. 90-4 pl. 48-4.
4. Wheeler-Harappa—pl. LIII B-9.
5. Mackay—*Chanhudaro Excavations* pl. XC-34.
6. No such piece was found by Vats—*Excavation at Harappa* p. 448, 450. This one was discovered by Wheeler.

Various other types of clay bangles have been found at Harappa. On plate XI B, figure 'XII' there is a bangle piece on which heart-shaped design is painted in white on red ground. Some other pieces have been found with similar ornamentation on green background.[1] Another plain bangle of pottery has been found with smudged bloches of dark grey on it, [pl. XI B fig 'I']. The dark colour may be due to the use of ferrous oxide suggested by Vats[2] or to a mixture of manganese and tin oxides. A similar bangle has been found at Mohenjodaro also. Most of the clay bangles are either of red or grey colour.

It may be noted that the plain bangles preceeded the decorated ones and the pieces with slanting linear decorations, those with heart-shaped designs. The cog-wheel shaped bangles must have come at a very late stage of development.

It is also worth noticing that the specimens in bright red colour come from a lower stratum than in grey.[4] The grey ones come from stratum III and IV while the red ones from strata I and II. These notes[5] of Vats, though based on bench levels, give us some information about the earlier and later pieces. We can thus presume that the grey varities are of a later period than the red ones. Unornamented bangles of shell have also been found in large numbers at Harappa. Perhaps their sheen attracted the fair sex and it was not considered necessary, therefore, to reduce the shining surface by carving designs on them.[6]

Figurines—As most of the figurines excavated from Harappa are armless,[7] it is not possible to make a comparative study of the ornaments worn on the arms and wrists. In some of the cases where arms are seen there are no ornaments.[8] There two or three

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1. Vats—*Excavatoins at Harappa*. p. 448.
2. *Ibid*—p 449.
3. Marshall—*M. I. C.* pl. CLII—1.
4. Vats—*Excavatious at Harappa*. p. 449.
5. Wheeler does not give the colours of the bangles he found from Harappa Wheeler—Harappa—*Ancient India* No. 3 p. 124, 125.
6. Vats—*Ibid*—p. 449, No. H 448.
7. Vats—*Excavations at Harappa* pls. LXXVI, LXXVII; Wheeler—Harappa—*Op. Cit.* LVI, LVII, LVIII.
8. Wheeler—*Op. Cit.* pl. LVII, 13, 15, 18, 19; Vats—*Ibid*—LXXV—1, 10 etc.

figurines, however, on whose arms and wrists, ornaments are definitely visible.[1] They are illustrated here [pl. XVIII (bottom)]. On the wrist of figure 'l' four bangles are discernible without any arm ornaments, while on figure 'm' several bangles are seen covering almost the whole of the left arm. With these few examples we cannot be certain as to how many bangles were generally worn by the people of this culture. On one of the wrists of a male figure from Harappa illustrated by Vats a sort of bracelet with round beads is seen.[2] This figure shows that men also wore bracelets.

Unfortunately the stratigraphical records of the bangle pieces are not at all complete. On stylistic grounds the development from plain to decorated bangles and thence to keeled shape indicates at least three periods. The two bangles pressed to form one indicate the latest period of this culture.

Mohenjodaro Culture–At Mohenjodaro also, bangles of metal, faience shellac and pottery have been found. Metal at Mohenjodaro was perhaps quite a favoured material for bangles.[3] Stone bangles have not been found except for one of steatite.[4]

Gold Bangles—From the first hoard discovered by Dikshit two pieces of thin sheet gold have been recovered. They may have once formed bangles[5] [pl. XX, figs (d) and (e).]. The diameter of these pieces when complete may have been in the neighbourhood of 3″. These thin sheets of gold were wrapped over a core which has since disappeard. The core most probably consisted of shellac, as a similar piece of gold bangle found by Mackay has traces of lac[6] inside the sheet. There are also holes at the end of these pieces perhaps to tie them to other bangles on the wrist.

Four other gold bangles were found[7] in the third hoard [pl. XXV, fig (h), (i), (j), and (k)]. These are also of sheet gold, first prepared as hollow tubes and then bent over. The joints are inside the bangles. The edges just meet. They do not overlap. It looks as

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1. Vats—*Excavations at Harappa* LXXVI–20, LXXVII–50, 51.
2. Vats—*Ibid* pl. LXXVI–20.
3. Mackay—*Further Excavations* p. 533.
4. *Ibid*—pl. CXXXVI–85.
5. Marshall—*M. I. C.* pl. CXLVIII–1, 4.
6. Mackay—*Op. Cit.* p. 534.
7. Marshall—*M. I. C.* pl. CLI a–2, 3, 9, 10.

if the ends were sharply trimmed off with a chisel. The gold piece described by Marshall as a bracelet[1] looks more like a neck ornament than a wrist one.

Silver Bangles—The silver bangles are oval in shape [pl. XX figs (g) and (h)]. The silver sheet is 1/30 of an inch thick.[2] At the thickest point the diameter is ·55" while near the ends it is ·4". Here the ends are sharply turned in, otherwise they are similarly constructed as the gold ones. Similar bangles were found in Syria. They are supposed to have belonged to the Queen Amenemhat II (1938 B. C.–1904 B. C.)[3]. Another silver bangle found by Mackay,[4] however, has a different shape [pl. XXVI fig. (d)]. It is round in form and its inner ends meet at a point. It was also probably fashioned on a core.

Copper Bangles—Copper and bronze bangles have been found at Mohenjodaro in large numbers.[5] They are generally round or oval in shape. Their ends do not overlap as is the case with some of those found at Chanhudaro. They are of flattened copper wire slightly rounded.[6] Half rounded copper wire[7] and thick rounded copper wire[8] are illustrated[9] on fig 'f' [pl. XXVII]. In diameter they are 3·5" to 3·85". Perhaps bangles of 3·85" diameter were used as armlets. A fragment of copper bangle of a similar variety[10] was also found from Sahjo Kotiro by Majumdar [pl. XXXVI fig (t).]

From Chanhudaro, Mackay has found three types of copper bangles.[11] One is of stout rod. ·13" to ·27" in diameter,[12] another is of

1. *Ibid*—p. 522.
2. Marshall—*M. I C.* pl. CLIV–a, b.
3. Louver. n. 173 objects de provenance egenne et Syrienne trouves dans un coffres de bronze marqued' Amenembat II–XII dynastie.
4. Mackay—*F. E. M.* pl. CXXXV–13.
5. Marshall—*M. I. C.* pl. CLII–4, 5, 6.
6. Mackay—*F. E. M.* pl. CXXXVI–86.
7. *Ibid*—pl. CXXXIX–26.
8. *Ibid*—pl. CXXXIX–24.
9. *Ibid*—pl. CXXXVI–95.
10. Majumdar—*Op. Cit.* 48 pl. XXXIII–72.
11. Mackay—*Chanhudaro Excavations* p. 190.
12. *Ibid*—pl. LXII–5. LXVI–2, 8, 11; LXIX–11; LXXIII–19, 23, 24,29; LXXVI–11, 12; LXXVI–18, 20.

half round bars flat inside.[1] The third variety is made of bronze sheet turned inside, U-shaped in section. These hollow bangles which were fashioned to cut out weight must have been evolved later. To avoid being mis-shaped they may have been filled with a core [pl. XXXVII figs. (a), (c), and (d)]. It is just possible that the copper bangles may have been overlaid with gold to simulate gold bangles, especially the ones made of thin sheet of copper. A small bit of copper, probably part of a bangle with traces of gold on it has been found at Lohemjodaro, I which leads us to this conclusion. As thin bronze sheet bangles have not been found at Mohenjodaro, it may be presumed that they belong to Jhukar period, and were perhaps manufactured in the days of trouble which may have followed the arrival of a new people. The bangles made of half round bars, flat inside are not many in number.

From Chanhudaro Majumdar was also able to find a copper bangle fragment made of round bar,[3] with a diameter of 1 05".

Bangles of faience and of vitreous paste perhaps used to be made in small wooden moulds.[4] They carry elaborate ornamentation on them. On figure 'h' [pl. XPVII] there is a fragment with herring bone pattern incised on viterous paste of light leaf green colour[5] about 3" in diameter. Another one is seen on figure 'j' [pl. XXVII]. It has three grooves on its surface and still retains a considerable amount of blue colour.[6] On figure 'r' there is another piece with deeply serrated rim.[7] On figure 'g' there is a bangle fragment with a fluted decoration on outer surface greenish blue in colour.[8] Blue vitreous paste bangle fragments with incised chevron pattern having an inside diameter of 2·3", have also been found here,[9] [pl. XXVIII A. fig (j)]. From Lohemjodaro lower level three pieces of viterous paste bangles have been found, two with incised

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1. *Ibid*—pl. LXII-6; LXVII-4, 5.
2. Majumdar—*Op. Cit.* p. 56, pl. XXIII-24.
3. Majumdar—*Ibid.* p. 44, pl. XLI-16.
4. Mackay—*F. E. M.* p. 528.
5. Marshall—*M. I. C.* pl. CLII-3.
6. *Ibid*—pl. CXXXIV-6.
7. *Ibid*—pl. CLII-9.
8. *Ibid*—p. 530.
9. Mackay—*F. E. M.* pl. CXL-57.

chevron pattern and the third with corrugated outer surface,[1] [pl. XXXIX figs (q), (r) and (s)]. All these bangle fragments with chevron pattern appear to be of Jhukar Culture.

From Chak Pūrbāne Syāl[2] cream-coloured faience bangle fragments,[3] triangular in section, have been found [pl. XXXVI, fig. (d)]. Bangle fragments of blue faience[4] round in section have also been discovered [pl. XXXVI fig. (i)]. The pieces of faience on figures 'f' and 'g' have linear hatchings.[5] From Kotal Nehang Khan also Vats has found a fragment of faience bangle with rope-like moulding [pl. XXXVI fig. (e)[6]]. At Rupar, a site near Kotla Nehang, some faience bangle pieces of similar design have been found from levels which correspond to the later phases of Mohenjodaro Culture.[7]

From Chanhudaro also faience bangle fragments of similar shape with similar linear decorations have been found.[8] They are light blue, yellowish green or cream coloured. A number of these pieces have lost their colour, having been washed in acid [pl. XXXVII figs. (e) and (g)]. On figure 'e', is an oval bangle piece of faience.[9]

Another important piece from Mohenjodaro is a fragment of bent bangle of white paste heavily ornamented with rib pattern.[10] It is 2·55″ long and 4″ in section [pl. XXVI fig. (n)]. Not many pieces of this variety have been found at Mohenjodaro, but bangles with similar kink have been discovered from levels of later period in Mesopotamia.[11] Similar kink is seen in Cypriot bangles[12] of 500 B. C. and also in some gold bracelets of Susa of Achæmenide

1. Majumdar—*Op. Cit.* p. 55 pl. XXXIII-6, 60, 7.
2. Vats—*Excavations at Harappa* p. 476.
3. *Ibid*—pl. LXXIV-b, 1.
4. *Ibid*—pl LXXIV-b, 6.
5. pl. LXXIV-b 4, 9.
6. *Ibid*—pl. XXIII-34.
7. Sharma, Y D.—Exploration of Historical Sites *Ancient India No.* 9 (1953) p. 126 fig. 4-16.
8. Mackay—*Chanhudaro Excavation* pl. LXXVII-2-5, 8, 10; XC—35-38.
9. *Ibid*—pl. LXXVII-4.
10. Mackay—*F. E. M.* pl. CXL-58; Marshall—*M. I. C.* pl. CXLIV-9; CXLIV-a, b.
11. Harcourt Smith—*Babylonian Art* pl. 76.
12. *Illustrated London News* Nov. 9, 1929, p. 807.

period.[1] Perhaps originating from India, this design caught the imagination of the western goldsmiths who reproduced it in their own bangles. Similar ribbing is seen on bangles of Knosso[2] on the pieces of 16th century B. C. Another oval piece of vitreous paste apple green in colour[3] has also been found. Its diameter is about 2·2".

Shell Bangles—The shell bangles at Mohenjodaro are of two types. One is on fig. 'e' [plate XXVIII A,][4] and the other on figures 'd' and 'k'. The first type perhaps used to be made into two parts. This piece has two holes at the ends for attachment. Bangles in two parts are still made in metal and shell only. They have joints in place of holes. When complete its diameter probably would have been in the neighbourhood of 2·68". Similar bangle pieces have been found at Lohumjodaro from the lower levels[5] and also in Mysore from Śṛnivāsapura.[6]

Another type[7] is on figure 'd'. Such type of bangles used to be cut out from chank and then hewn into shape. A number of them are still rough and need much further work,[8] [pl. XXVIII-A, fig. (k)].

Shell bangles are still worn in Bengal and other parts of India to mark the bliss of married life.

From Chanhudaro site also similar shell bangles[9] have been found from Mohenjodaro level. Of the five pieces four are unfinished, the fifth has two grooves round the circumference. This last piece appears to belong to the Jhukar culture [pl. XXXVII–fig. (h)]. Majumdar has also found from Chanhudaro univalve[10] and composite bangles with holes[11] [pl. XXXIX fig. (p)]. He came across similar pieces from Lohemjodaro. Another piece has been found

1. *Memoire delegation en Perse* T. VIII, pl. V.
2. Eavans—*Palace of Minos* III, p. 409.
3. Mackay—*Further Excavations* pl. CXLII–9.
4. *Ibid*—pl. CXL–47.
5. Majumdar—*Arch. Surv. of India Memoirs 48* pl. XXXIII–2.
6. Foote, R. B.—*The Foote Collection* p. 16, No. 160.
7. Mackay—*F. E. M.* pl. CXLII–13; *M. I. C.* CXL–60.
8. Mackay—*Ibid* pl. CXL–56.
9. Mackay—Chanhudaro Excavation. pl. XC–15.
10. *Ibid*—pl. LXXVII–6; Majumdar, N. G. *Op. Cit.* p. 41, pl. XVII–35.
11. *Ibid*—XVII–45.

by him with grooves, which appears to be of Jhukar culture,[1] [pl. XXXIX-fig. (g)].

From Lothal shell bangle pieces have recently been unearthed. They all appear to belong to the late Mohenjodaro culture. One of these has a triangular section.[2]

One piece of stone bangle has also been found at Mohenjodaro. It is of steatite white in colour.[3] Its diameter is 3·6". It is 4" wide and ·24" thick (Locus : B 18" A. rm. 41). Most prabably this is the only example of a stone bangle at Mohenjodaro.

Pottery Bangles—Pottery bangles of several types and different colours have been found at Mohenjodaro[4] The most common, however, are of red and grey colours. A peculiar type is hard backed black or chocolate brown on the outside with a few pictographical characters in very small letters incised on one side of the bangle.[5] Perhaps these letters were supposed to have some magical power. Mackay has suggested that the black or brown colourisation is due to ferrus oxide.[6] Generally, however, manganese and tin are responsible for producing this type of colour.

These pieces are generally round with one exception which is oval. One piece has light grey colour inside and dark purple brown outside.[7] Two pieces have state grey colour inside and redish purple outside.[8] One piece has sign of figure 8 lightly incised[9] Pottery bangles with pink slip have also been found.[10] Another piece has broad bands of dark red point.[11] It is round in section. Most probably these pottery bangles were worn as *cūris* They have an outside diameter of 3·14 to 3·6" and inside one between 2·08" and 2·5"

1. *Ibid*—pl. XVII-39.
2. A. Ghosh—*Indian Archaeology* (1955-56) p. 7, pl XI B
3. Mackay—*F. E. M.* p. 537, pl. CXXXVI-85.
4. Marshall—*M. I. C.* CLII-11.
5. Mackay—*F. E. M.* CXXXVI-93, 94, CXL-65; CXLII-17, 18, 19, 24-26; Marshall—*M. I. C.* p. 530.
6. Mackay—*F. E. M.* d. 536 (footnote).
7. *Ibid*—pl. CXXXVI-94.
8. *Ibid*—pl. DXLII-24, 25.
9. *Ibid*—pl. CXLII-19.
10. Marshall—*M. I. C.* pl. CXXXIV-7.
11. Mackay—*F. E. M.* DK 8716.

The larger ones may have been used as armlets and still larger ones as anklets.[1]

From Jhukar lower levels N. G. Majumdar has found similar terracotta pieces of bangles with an inside diameter of 2·45 to 2·5",[2] [pl. XXXIX fig. (b)].

Terracotta bangle fragments with bloches of red have been found from Chanhudaro by Majumdar. They appear to be of Mohenjodaro Culture.[3] A bangle of terracotta in grey 2·9" in diameter is another find belonging to the same level,[4] [pl. XXXIX fig (1)]. On figs 'b' 'i' 'g' and 'k' (pl XXXVI) are some of the pieces of clay bangles found by Mackay from Chanhudaro. On figure 'i' there is a bangle piece on which it appears that depressions on the edges have been made to simulate mouldings [5] This piece resembles in form to the grey clay bangle found from Machiyao site of Kansu.[6] On figure 'k' the bangle piece is ornamented with triangular bloches of colour.[7] It is flat in section, ·35" wide, ·12" thick, with pink slip. On figure 'j' the bangle piece has finger depressions on the surface.[8] The bangle piece on figure 'b' is ornamented with red stripes on yellowish slip.[9] It is flat in section and is very much like the piece of terracotta bangle fragment found by Majumdar described above.

From Lakhiyo N. G. Majumdar has found several bangle fragments.[10] Their diameter varies from 2·2 to 3·9" [pl. XXXIX fig (n).] The larger ones may have been used as armlets. They all are grey coloured. From Lohumjodaro lower levels terracotta bangle fragments have been found.[11] They have also a diameter of 2·1" and are grey in colour, [pl. XXXIX fig. (m)]. From Sahjo Kotiro[12]

1. Mackay—*Ibid* p. 535.
2. Majumdar—*Op. Cit.* p. 12 pl. XV–15
3. Majumdar, N. G. *Op. Cit. 48* p. 41 pl. XVII–31.
4. *Ibid*—pl. XVII–36.
5. Mackay—*Chanhudaro Excavations* pl. LXXVII–9.
6. Anderson—*Researches in the Pre-History of the Chinese Bull.* 15 p. 90 pl. 48–4.
7. Mackay—*Chanhudaro Excavations* pl. LXXVII–11.
8. *Ibid*—pl. XC–39–40.
9. *Ibid*—pl. LXXVII–13.
10. Majumdar—*Op. Cit.* p. 77 Lk, 14, 15, 16.
11. Majumdar—*Ibid* p. 65 pl. XXII–46.
12. Majumdar—*Ibid* p. 139.

also terracotta bangle fragments of buff colour have been found. They have a diameter of 2·65″. From Karchat another Mohenjodaro site, terracotta bangle fragments have been found. One of them has a row of dots in chocolate on the edges.[1]

On examining the faience and the pottery bangles of Mohenjodaro Culture on stylistic basis we find that there are several phases to which these finds belong, for example the bangle with a kink of faience[2] as well as faience bangles decorated with chevron pattern[3] should belong to the latest period, while bangles of vitreous paste or faience without designs should be the earliest. To the middle phase should belong the bangles with linear decorations. Similarly the pottery bangles with red paint ought to be of the earliest level[4] as they have some affinity with the bangles of Amri Culture[5] where pieces with red bloches have been found while the light grey coloured bangle pieces[6] should be of the middle phase, the dark grey ones with pictographic characters should belong to the latest phase[7] having been found not at great depths from the surface.

Figurines—The arm and the wrist ornaments on the figurines of terracotta appear to consist of bangles except in one case where we come across an armlet with a disc in the centre. Bangles on the wrists and arms are also seen on some of clay figurines of the first dynasty of Babylon probably of 2400 B. C.[8].

On figure 'a' [pl. XXIII] we see three to four bangles on the right arm[9] like the later armlet of the attendant of Ashur Bani Pal who is killing the lion with a spear,[10] in the Assyrian Saloon gallery of the British Museum On the wrist of this figure there are four bangles of some metal. The left arm is covered from top to bottom

1. *Ibid*—p 131 KR-87.
2. Mackay—*F. E. M.* pl. CXL-58.
3. *Ibid*—pl. CXL-57.
4. *Ibid*—DK. 8715 depth 21″ ·0″
5. Majumdar—*Op Cit.* pl. XVII-12 our pl. II-b, b′.
6. Mackay—*F E. M.* p. 536 pl. CXLII-No. 26 depth 19′ ·5″.
7. *Ibid*—pl. CXXXVI-93 depth 3′ ·3″.
8. *British Museum* Clay figurine *No. 11684*, Clay figure *No. 11707*. The naked goddess—*British Museum*.
9. Marshall—*M. I. C.* pl XCIV-6.
10. British Museum—A *Summary Guide to the Antiquities of Western Asia* pl. I (668-650 B. C.).

with bangles. The heavy ornamentation on the left arm suggests that it was not utilised for work as is the common custom in India up to this day. Similar multiple bangles on the wrists are also faintly visible on the other bronze figurine recovered from Monenjodaro by Mackay.[1] On the arm of the stone figurine found at Mohenjodaro[2] we see an armlet with a central piece which has a stylised lotus as its ornamentation [pl. XXXIII fig (b)]. A similar ornament with almost similar decoration is seen on the arm of the Assyrian attendant of Ashur Nasir Pal's palace.[3] On his wrist also a similar ornament appears, but here the wrist of the statuette is broken. On figure 'c' we find four rings on the right wrist of this terracotta figurine.[4] The rings appear to be made of flat metal rods The left wrist is broken. On the two arms there are three to four bangles. On figure 'd', however, there are five rings[5] on the wrists and six on the arms. We cannot, therefore, presume that it was the general fashion to wear unequal number of bangles on either arms or wrists. On figure 'e', however, there is just a faint indication of bangles on the right arm.[6] On figure 'f' we have a terracotta piece where on each of the arms three bangles are seen.[7]

The numbers of the rings on the wrist and the arms suggest that they must have been quite light and often hollow to enable the fastidious women of Mohenjodaro to wear them in profusion.

There are very few figurines of Chanhudaro of Mohenjodaro level with arms and wrists. On figures 'k' and 'l' [pl. XLI] some traces of bangles and armlets are seen. On figure 'k' there are three rings on the arm. The wrist of this figurine is missing.[8] On the wrist of figurine 'l' however, there are four 'rings. But on the arm there are three bangles.[9] This is the left hand of the figurine but is not

1. Mackay—*Further Excavations at Mohenjodaro* pl. LXXIII–10.
2 Marshall—*M. I. G.* pl. XCVIII–1.
3. Godd, G. G.—*The Stones of Assyria. Illustrated London News* Dec. 12, 1936 p. 1071.
4. Mackay—*Further Excavations* pl. LXXXV–1.
5. Mackay—*F. E. M.* pl. LXXXV–5.
6. *Ibid*—pl. LXXV–6.
7. Marshall—*M. I. C.* pl. XCIV–14.
8. Mackay—*Chanhudaro Excavations* pl. LIII–1.
9. *Ibid*—pl. LIII–7.

covered with bangles *tout a fait* like that of the bronze figurine of Mohenjodaro.[1]

Jhukar Culture—From Shahi Tump which equates in some phases with Jhukar culture Sir Aurel Stein has recovered bangle fragments of shell, terracotta and glass, [pl. XXXIX figs. (w). (x), and (z-2)].[2] Crudely manufactured in design, they mark the advent of a new culture and decadance of Mohenjodaro Arts and crafts. The glass bangle pieces found here may have been imported from Sutkagen Dor. Of similar crude manufacture are the pieces of vitreous paste bangles found from the upper levels of Lohumjodaro.[3] They have linear decoration on the upper surface. From Chanhudaro fragments of terracotta bangle[4] exactly like those discovered by Mackay have been found by Majumdar [pl. XLII-fig. (p)]. They look as if three or four bangles were joined to form one bangle. But shank shell fragment of a bangle[5] found here by Majumdar which is of the same type as the one found by Mackay confirms the view that this was a design peculiar to the Jhukar culture. A copper piece bangle fragment made of round bar[6] has also been found at this site. The finds of Mackay, however, include bangles made from thin copper sheet of 'U' shape.[7] No such bangles have been found at Mohenjodaro though copper bangles of round bars occur there. It can be assumed that this type belongs to the new phase. Mackay has, however, found a full pottery bangle looking like a coiled snake,[8] of the type found by Majumdar already referred to above [pl. XXXVII fig. (l)]. The shell bangle[9] with two grooves round the edge found by Mackay here also suggests that this design had become quite popular. It is seen on terracotta bangles also. Due to paucity

1. Marshall—*M. I. C.* pl. XCIV-6.
2. Sir Aurel Stein—*Arch. Surv. of India Memoirs—43* p. 96 pl. XIX-III 47; IN-7, III. 22, I. 1.
3. Majumdar N. G.—*Op. Cit.* p. 58, Lh, 215.
4. *Ibid*—p. 41 pl. XVII-40.
5. *Ibid*—p. 41 pl. XVII-39.
6. *Ibid*—p. 44 pl. XLI-6.
7. Mackay—*Chanhudaro Excavations* pl. LXXII-30; LXXVI-21.
9. *Ibid*—pl. XC-34.
9. *Ibid*—pl. LXXVII-6.

of material it is difficult to determine the development of designs of this culure.

Jhangar Culture—Unfortunately no bangle fragments of this culture are reported either by Majumdar[1] or by Mackay.[2]

Thus we find that each culture had its own type of bangle and it can be presumed that men wore a kind of bracelet while the women generally adorned their wrists and arms with round bangles.

1. N. G. Majumdar *Op. Cit.* p. 78–79.
2. Mackay—*Chanhudaro Excavations* p. 90,

CHAPTER VI

FINGER RING

Finger rings and ringstones have been found at practically all levels of the Indus Valley Civilization, but unfortunately we do not find them on the fingers of the clay figurines. The one evidence we get of the use of finger rings is from a skeleton of 1946 series of Harappa, pointed out by Wheeler.[1] On the ring finger of the right hand of this body a copper ring has been found. Another evidence comes from Rupar. In a recent excavation by Y. D. Sharma a skeleton has been found with a copper ring on its middle fiuger [2] Thus we can now presume that finger rings were worn on the middle and the ring fingers by the people of the Indus Valley.

We are, however, not aware of the name of the finger ring as the the script of the Indus Valley still remains unread.

Quetta Culture—No rings or ringstone are reported to have been found from the two early levels of Quetta Culture so far noticed.[3]

Amri Nal Culture—One finger ring has been found at Ghazi Shah. It is of copper with a diameter of ·7" [pl. II fig. (d)] The silver ring found at this site has already been described in connection with ear ornaments.[4] Another copper finger ring of a similar shape has been found at Dhal,[5] another site where Amri type of pot-sherds were noticed.[6] These rings are simple in make as they are constructed from flattish copper wire joined together by soldering.

From one of the graves at Nal a marble ringstone[7] has been found [pl. III fig. (m). It has a diameter of 34 mm. and a thick-

1. Wheeler—Harappa—*Ancient India* (1947) No. 3, p. 86.
2. A. Ghosh—*Indian Archaeology* (1954–55) p. 9.
3. Fairservis—*American Museum Noviates* p. 13. 23,
4. Majumdar—*Arch. Surv. of India Memoirs* 48. p. 86, pl. XXXIII–49.
5. Majumdar—*Arch. Surv of India Memoirs* 48 pl. XXXIII–51.
6. *Ibid*—p. 126.
7. Hargreaves—*Arch. Surv. of India Memoirs* 35, p. 41; pl. XV–b–47.

ness of 39 mm. Two other pieces of marble discs, one polished on one side, and the other polished on both sides, have also been found here.[1] Probably some bead used to cover the central hole and allowed the wire to pass through these stone pieces and make the body of the ring. One thin small shell finger ring has also been discovered here,[2] but it appears to belong to a later level.

Zhob Valley Culture—From Moghul Ghundai a bronze ring has been found. It has a bezel at the top and is oval in shape.[3] It has two figures, one of which is a standing male figure wearing a high helmet-like head dress, with a spear behind the left shoulder and a bow in the left hand. Before this figure stands a woman wearing a skirt, right arm raised to the head and bent left hand resting on the hip. The right leg is also bent showing a dancing pose [pl. IV fig. (h)]. This appears to be of a much later date probably of *Kushān* origin, though amulets with human figures have been found at Mohenjodaro[4] Two other bronze rings[5] found here are perhaps for the ears, [pl IV fig. (i)]. From Periano Ghundai rings made of round copper wire[6] which are definitely for fingers, have been found

Kulli Mehi Culture—From Mehi Sir Aurel Stein was able to discover a ring of copper[7] though it is described as a bracelet. Its size is so small that it cannot fit even a small wrist. No rings are, however, seen on the fingers of clay figurines.

Harappa Culture—From stratum IV of Harappa Vats has found a plain ring of gold rectangular in section.[8] Its diameter is ·67" and it is illustrated on [pl. IX fig. (r). Another ring on fig. 's' is of copper, oval in section.[9] It has a plano-convex disc-shaped silver bazel at the top At its widest point it has a diameter of ·85".

1. *Ibid*—p. 41, No. 113
2. *Ibid*—p. 43, No. 124 (b).
3. Sir Aurel Stein—*Arch. Surv. af India Memoirs 37*, p. 48; pl. XII–mnw; XVII.
4. Mackay—*Further Excavations at Mohenjodaro* pl CXL–59.
5. Sir Aurel Stein—*Arch Surv. of India Memoirs 37*, pl. 48.
6. *Ibid*—p. 33–34, pl. XII–z; also p. 37.
7. Sir Aurel Stein—*Arch. Surv. of India Memoirs* 43, pl. XXXII; Mehi–i, 8, 2.
8. Vats—*Excavations at Harappa* pl. CXXV–55.
9. *Ibid*—pl. CXXV–49.

It was found from the top of stratum I. A copper ring with three overlapping coils of thin copper wire[1] has also been unearthed [plate IX fig. (1)]. Two small copper rings of flat copper wire are among other finds from this site.[2]

Of the faience rings the one on figure 't' [pl. IX] has a cable pattern on it.[3] Its diameter is .9″ and it has been found from stratum III. Another white faience ring fragment has been found by Wheeler[4] from the debris layer of the cemetery area, pl. XI-A fig. (n).

On figure (u) [pl. IX] there is a burnt steatite ring found by Vats.[5] It is the only example of burnt steatite ring found at Harappa. There are four equidistant holes perhaps for inlay. Another steatite ring is on [pl. XI] figure 'k'. It is oblong in section and was found by Wheeler from[6] Hp. XXX area near the surface.

Finger rings of alabastar also occur here.[7] One is illustrated on plate IX fig. 'v'. These rings are slightly oval in section 1.1″ by .9″ and 1.15″ by .1″. It is just posssible that these might have been worn by the people of this culture on ring fingers or the middle fingers.

A finger ring of terracotta appears on [plate XI-B] figuce 'vi'. This one was found by Wheeler[9] during the excavations of the fortifications of Harappa and may be a ring for the toe.

A finger ring of copper was actually found on the third finger of the right hand of a skeleton of a woman in one of the graves of Harappa as has been mentioned before, though this grave is of a later period.

Mohenjodaro Culture –In the first hoard found by Dikshit there are two finger rings, [pl. XX figure (1) and pl. XXI figure (b)]. The silver finger ring on figure (1) described by Marshall as an earring (M I. C. Vol. II p. 528) is of simple design with

1. *Ibid*—pl CXXV-56
2. *Ibid*—pl. CXXV-9, 10
3. *Ibid*—pl CXXXIX-43
4. Wheeler—Harappa *Ancient India No.* 3 pl. LIII-A, 14.
5. Vats—*Excavations at Harappa* pl. CXXXIX-24
6. Wheeler—Harappa, *Ancient India No* 3 pl LIII-A, 11.
7. Vats—*Excavations at Haraapa* pl. CXXAIII-1, 20
8. *Ibid*—pl. GXXVIII-1, 20
9. Whoeler—Harappa, *Ancient India* pl. LIII-B-5.

overlapping ends, while the ring on figure 'm' has bezel 1" square and ·2" thick, which bears a design of crosses and semi-crosses enclosed within a border of two lines set close together with a design of dashes in between them. The design is similar to the one seen on an inlay piece of shell[1] found here. The rings on figure 'k' and 'q' of plate XX are made of flattened bars[2] of silver ·25" wide and ·1" thick to which the bezels have been roughly soldered.

The copper finger rings are generally of copper or bronze wire round in section.[3] There are copper rings with bazel at the top[4] and copper rings with ends overlapping,[5] [pl. XXVI fig. (i)]. There are also rings of copper in which no joint is visible.[6] Rings with two, three, four, five and seven coils of copper wire have also been found.[7] On pl. XXVI fig. (1) is a ring with seven coils. The diameter of the wire of the coiled rings is near about ·12" and the ends of the wire are not concealed. It may be mentioned that the ring with seven coils may be of Jhukar culture. Rings with overlapping ends have been found at Kish[8] and Shah Tepe.[9] Finger-rings with three coils have been found at Susa[9] and with several coils at Hissar[10] where it has been observed that the larger the number of coils the better is the ring. Similar coiled rings have been found in Sumer from contemporary levels,[11] and also at Sialk.[12] From the other sites of Mohenjodaro like Lohumjodaro a copper ring of flattened copper wire was found.[13] Its diameter is ·6". The copper finger rings found from Chanhudaro are also of similar

1. Marshall—*Mohenjodaro & the Indus Valley Civilization* pl. CLV–34, 35.
2. *Ibid*—pl CLII–13.
3. Marshall—*M. I C* pl. CXLIII–4; Mackay—*F E M* pl CXL–49.
4. Mackay—*F E M*. pl. CXXXVI–87.
5. Mackay—*Ibid* pl. CXLII–11.
6. Mackay—*Ibid* pl. CXLII–22.
7. Mackay—*Ibid* pl. CXL–45 (2 coils); 55 (3 coils), 50 (4 coils); 52 (5 coils); CXLII–18 (7 coils).
8. Mackay—*'A' Cemetery at Kish* Vol. I, pl. XX–16, B 18, 1, B 23.
9. Mackay—Further Links etc. *Antiquity Vol. V* p. 337.
10. Schmid—*Hissar* pl. pl. LIV–1. 2106.
11. Woolley—*Ant. Journal* Vol. XII, p. 368
12. Ghirshman—*Fouilles de Sialk* pl. LIX–S. 649 b.
13. Majumdar—*Op. Cit. Memoirs 48* p. 66, pl. XXXIII–27.

varieties, generally round in shape.[1] Here we come across rings with several coils[2] also. These coiled examples may be of Jhukar culture. Majumdar[3] during his exploration found a stone ring from this site which is of considerable interest.

As compared to the number of copper rings found from the various sites of Mohenjodaro the number of silver rings is comparatively small, and of gold there is none. Perhaps, there may have been some religious prejudice against gold finger rings, as there is today against wearing gold ornaments below the navel. Silver finger rings were well known in Kish[4] and Sumer.[5] In Egypt, however, silver was valued over gold[6] but the people of Mohenjodaro had access to larger supplies of silver than their western brethren.[7]

An interesting piece is a finger ring of steatite illustrated on [pl. XXVI] figure 'm' found at Mohenjodaro with a trefoil design on it. This trefoil design as has been mentioned before may have been a sacred symbol and this ring may be either of the high priest of Mohenjodaro or that of the sovereign. Here the trefoil is of a later type with dots in the centres of the split circles, The outer diameter of the ring is 1·6″ and the inner ·7″ Another important ring is of faience with an outer diameter of 1·4″ and inner of ·69″, [pl. XXVI fig. (n).] It is of light yellow paste with traces of a green glaze on it ornamented with ribbed design on the surface. Another faience finger ring fragment was found at Kotla Nehang Khan[8] by Vats from Mohenjodaro level. It is plain. A ringstone was found from Tando Rahim Khan by Majumdar during his explorations. It is of greyish limestone. The hole in the centre of the stone has been made smooth perhaps by revolving a wooden peg through it.[9] Several finger rings of shell have also been found at Mohenjodaro simply manufactured[10] and having no designs on them.

1 Mackay—*Chanhudaro Excavations* pl LXXIII–20, 21, LXXXIX–8
2. *Ibid*—pl LXXIII–9–12.
3. Majumdar—*Op Cit Memoirs 48* p 44.
4. Mackay—*'A' Cemetery at Kish* Vol II, pl. LIX–22.
5 Woolley—*The Royal Cemetery* pl. 219.
6. Emile Vernier—*La Bijouterie et La joaillerie Egyptiennes*–(1907), p. 6.
7. Mackay—*F E. M.* p. 531.
8. Vats—*Excavations at Harappa* pl. LXXIII–36.
9 Majumdar—*Op Cit. Memoirs 48* p. 105 pl. XIX–37.
10. Marshall—*M. I. C.* p. 528, pl. CLII–13.

Jhukar Culture—From Shahi Tump, Sir Aurel Stein has found a stone ring in one of the graves.[1] The terracotta ring found at Zangian[2] may also be for the finger or for the toe. This site equates with Shahi Tump in its latest phases, as a badly rusted sword with a bronze handle was found here as already mentioned before. The copper finger rings of the coiled type, found at Chanhudaro by Mackay,[3] mentioned before, appear to be of Jhukar culture. They have five to seven coils and resemble very much the clay bangle found at Jhukar level.[4] Such coiled finger rings of copper or bronze have been found at Hissar, III level[5] and should, therefore, be of a later period than Mohenjodaro culture. The ring of pottery at Chanhudaro with traces of red paint on it has a diameter of ·91". It may also be of Jhukar culture,[6] for, it resembles the bangles of Jhukar level of red bloches.

Jhangar Culture—No finger rings are reported to have been found so far from this level.

It may be of interest to note that as in Egypt the finger rings would have been one ofthe first pieces of metal Jewellery to be manufactured by the early bronze age man of India. The goldsmiths first would have prepared the ring out of round bars of copper leaving the ends open. Later finding these inconvenient to wear they would have put one end over the other to avoid scratches on the fingers. From this type of rings, the rings with bezel tops and rings with several coils would have been joined together by attaching a bezel over them for avoiding scratches. It can, therefore, safely be assumed that rings with open ends should be of earlier origin than the rings with ends overlapping and rings of round bars appeared earlier than those of flattened strips of metal. The coiled types and those with bezel tops should be contemporaneous, while those with five and seven coils should be of the latest phase.[3] For, here we observe that the ends have been filled to avoid pricking the fingers. The steatite and the faience rings should be co-eval with the bezel-top rings.

1. Sir Aurel Stein—*Op Cit. Memoirs 43*, p 96.
2. *Ibid*—p. 88, pl. X–II, XVIC.
3. Mackay—*Chanhudaro Excavations* pl. LXXIII–9, 12.
4. *Ibid*—pl. XC–34.
5. Schmidt—*Hissar* p. 120; Tepe Hissar (1931)—*The Museum Jonrnal University of Musch* p. 381, pl. CV–(a); CXXXI–b–d.
6. Mackay—*Chauhudaro Excavations* pl. LXXXIX–8.

CHAPTER VII

GIRDLES

If the Indus Valley people were fastidious about their necklaces they also appear to have been equally fashion-conscious about their girdles. Several types of girdles are seen on the terracotta figurines, some composed entirely of beads, others of metal strips and others still of bosses[2]. Whether these beads and bosses were of copper, silver, faience or pottery, we do not know, as on the skeletons of the dead exhumed from the Indus Valley no girdles have been found so far.[3] It, however, appears reasonable to suppose that the bead-spacers, terminals, bosses and spacers of pottery found at different sites should be parts of girdles rather than of necklaces. With gold and silver in plenty[4], the people of this civilization would not have liked to put on necklaces of pottery beads. Even to-day in India gold which is more costly than silver generally adorns the upper part of the body, while silver is worn on the lower. The fashion of wearing terracotta bangles along side with metal bangles is on a different footing. They were in all probability used in place of glass bangles of today and not as counterparts of metal bangles. Even today bangles of glass are worn along with diamond bracelets

It is not only in India that we come across girdles. We see them also on the clay figurines of the first dynasty of Babylon (of 2400 B. C.).[5] We come across them on the waists of animal-human figurines of shell from Ur[6] and also on the figurines from ancient Crete.[7] Decorated girdles are also visible on the statues from ancient

1. Vats—*Excavations at Harappa* pl. LXXXVI–12,
2. *Ibid*—pl. LXXVII–51, 53
3. Wheeler—Harappa. *Ancient India* No 3, (Jan. 1947), p. 86.
4. Marshall—*M. I. C.* p. 523.

1. *British Museum* No. 11684.
2. Woolley—*Ur Excavations* Vol. II, pl. 195.
3. *Annual Report of the Archaeological Survey of India* 1934–35, p. 94 also Hrezuy—*Ancient History of Western Asia, India and Crete*—p. 211; fig. 129.

Egypt[1] and among the ornaments worn by the figurines on a gold plaque from Mari.[2] Perhaps originating from a simple string of bark to keep the loincloth in place, they may have developed into an elaborate ornament which we come across later on *Bhārhut* figurines.[3] What were the girdles called in the Indus Valley civilisation we do not know.

Quetta culture—Except for the figurines from Damb Sadat the others have no trunks [pl, I, figs. (e) and (f)]. Here faint traces of girdles are visible though it cannot be said with certainty whether these suggestive lines represent girdles or folds of cloth. Some beads have also been found at this site but their details are so far not available.[4] Some of these may be girdle pieces.

Amri-Nal culture—From Amri a number of biconical terracotta beads[5] have been found with incised decorations on them, [pl. II, fig. (k).] They are almost like short beads of other material. They seem to have been painted, as traces of paint can be seen in the crevices of these beads. It is just possible that they were threaded and worn as girdles. Long barrel beads of terrracotta have also been found at Amri from the upper levels.[6] They have a diameter of ·45″ in the centre and length of 2·57″. Similar terracotta beads have been found at Ali Murad[7] with traces of red wash. Such long beads would fit the waist better than the neck. From Ghazi Shah also Majumdar was able to recover terracotta beads 2·05″ in length similar in shape to those of Amri [pl. II, fig. (e)]. [8] Several terracotta beads with incised decoration have been found at Lohri, similar to the one on figure 'k'. They are biconical and have a diameter ranging from 1″ to 1·2″. A long barrel shaped bead has also been found here. Its length is 1.3″, [pl. II, fig. (a)]. Similar beads have been found at Arabjo Thano[9] and Khajur.[10] From Pandi

1. *British Museum*—Statue of *Senusret III* No. 686, XII, dynasty.
2. *Musee de Lauvre*—mt. A. D. 19131.
3. Cunningham—*Stupa of Bhārhut* pl. XXII, LI–23.
4. Fairservis—*American Museum Noviates* p. 13.
5. Majumdar, N. G.—Arch. Surv of India *Memoirs* 48 p. 32, pl. XVII 13
6. Majumdar—*Arch. Surv. of India Memoirs 48* p. 33, Am. 22.
7. *Ibid*—p. 107, pl. XXXIII–59, 60.
8. *Ibid*—p. 75, Lr. 20, 113, 172, 173, 188, pl. XXXIII–82.
9. *Ibid*—p. 136 137.
10. *Ibid*—p. 135, pl. XXXIII–70,

Wahi a fragment of a terracotta tablet has been found ornamented with incised double concentric circles [pl. II, fig. (n)]. Perhaps it is the centre piece of some girdle. Beads of terracotta with incised decorations also occur here[1]. These may have been used along with the tablet described above to form a girdle. From Mundara which represents the middle phase of Amri-Nal Culture[2] no terracotta beads are reported.[3]

From Nal a boss of terracotta described as a circular disc[4] has been found. It is ornamented with incised circles. These impressions appear to have been made by a tubular object. The diameter of the piece is 57-60 mm. This piece may have been used as a boss of some girdle. Another piece which looks like a part of a girdle is an irregular disc of unbaked clay, flat, pierced near the end parallel to the bottom.[5] Its diameter is 28 mm. Of the four hundred and twenty beads found at Nal,[6] there are a number of terracotta beads not described by Hargreaves which may have been used as parts of girdles.

Zhob Culture—From the sites of Zhob Valley like Sur Jangal Kundani, Dabarkot, Periano Ghundai and Moghul Ghundai terracotta beads have been found, but they are not described by Sir Aurel Stein. It is just possible that some of these beads found at Dabarkot,[7] and those found at Periano Ghundai[8] and Moghul Ghundai[9] may have been used for making girdles.

A copper buckle found at Periano Ghundai,[10] evidently a part of a girdle, appears to belong to a horizon of a later period. Unfortunately the clay figurines of Zhob Valley Culture like the ones found at Kuli and Mehi are legless and end before the waist in little

1. *Ibid*—p. 113; pl. XXXIII, PW 280–281.
2. Piggatt—*Pre-historic India* p. 76.
3. Sir Aurel Stein—*Arch. Surv. of India Memoirs* 43 p. 138–144.
4. Hasgreaves—*Arch. Surv of India Memoirs* 35, p. 42, No. 112.
5. Hargreaves—*Arch Surv. of India Memoirs* 35 p. 42, No. 98.
6. *Ibid*—p. 33.
7. Sir Aurel Stein—Arch. Surv. of India *Memoirs 37* p. 60.
8. *Ibid*—p. 40.
9. *Ibid*—p. 45.
10. *Ibid*—p. 41.

pedestals.[1] Only one figurine[2] coated with plaster and red paint has been found at Dabarkot with its lower parts intact [pl IV fig-(g)]. Here also no girdle is visible. This figurine, however, appears to be of a later period.

Kulli-Mehi Culture—Unfortunately Sir Aurel Stein does not say if he found terracotta beads at Kulli[3] and Mehi sites.[4] Several beads of stones were found at Kulli. Some of these may be parts of girdles. A copper stud found at Mehi[5] appears to be the boss of a girdle. The clay figurines of Kulli like those of Zhob end well above the waist and, therefore, no girdles are visible.

Harappa Culture—A number of fine red terracotta beads have been found at Harappa, though it seems that they were less popular than the stone and faience beads as the majority of them are of stone.[6] Apart from the truncated bicone circular beads,[7] there are short barrel beads round in section, the long barrel cylindrical beads,[8] disc-shaped beads oval in section, globular, segmented and a few medium-sized barrel-shape cylindrical with spiral grooves.[9] Spacers and terminals of terracotta have also been found by Vats. One of them is on [pl. XII] fig. 'x-14'. It has six holes probably to carry six strings of beads. Pottery terminals here[10] are generally semicircular like the one of faience on [pl. XII] fig. 'z-20'.

Some bosses which look like central pieces of girdles have also been found here. They are described as broaches by Vats but shaped as they are they would have fitted girdles better than any other ornament. There is one such piece on pl. IX-Z. Made of faience it has six petals dented at the edges having triangular droplike decorations over each petal. In the centre there is a circular round

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1. Piggott—*Pre-historic India* p. 126.
2. Sir Aurel Stein—*Op. Cit.* p. 62, pl. XVI–Dn. VI–I.
3. Sir Aurel Stein—*Arch. Surv. of India Memoirs 43* p. 123 etc.
4. *Ibid*—p. 156-161.
5. *Ibid*—pl. XXXI; Mehi III–6, 18.
6. Vats—*Excavations at Harappa* p. 433.
7. Wheeler-Harappa—*Ancient India No. 3* p. 124, pl. LI–(3)
8. Vats—*Op. Cit.* pl. CXXVIII–45, 46.
9. Vats—*Op. Cit.* p. 493.
10. Vats—*Op. Cit.* p. 440.

hole within a raised circle. The boss is concave and, therefore, the petals rise in relief from the centre. This piece has a diameter of 2.25" and was found from stratum II. A similar piece has been found at Lothal by Mr. S. Rao from Harappan levels.[1] Another piece is on fig. 'z-1' [pl. IX]. It is a plano-convex disc of faience relieved by a four pointed star enclosed within a border of linear decoration. It has holes near the point of the stars and may have been threaded as a centre piece of a girdle. The depressions may have been inlaid with some coloured stones here.

It is only on some of the figurines of Harappa that girdles are actually seen. The terracotta figure of the bearded man has a girdle of three lines composed of conical round disc beads, [pl. XIX fig. (a)]. Another type of girdle is seen in figure 'b'. It appears to be made of a broad sheet of metal rounded on the surface, not unlike the belts of metal used by women of Madras today. It has all the appearance of a big bangle. A similar girdle is seen on another figurine from Harappa.[2] On figure 'c' [pl. XIX] the girdle is composed of four metal strips which cover the waist. On figure 'd' the girdle has three strips of metal and two bosses, one in front below the navel and the other on the left hip. The conical disc bosses have, however, no ornamentation on them. The clay figurines on figure 'e' wear a similar girdle as the one seen on figure 'd' but the discs seem to have some ornamentation on them. The design is not quite clear, but the tops of the disc have raised surface. These girdles are holding up the lower garments. On figure 'f', there are three discs attached to the girdle of three strips, one on each side of the waist and one in the centre. They all seem to be ornamented. A girdle of beads is faintly visible on another figurine of Harappa[3] and on still another a girdle with triangular beads is noticed. A similar bead girdle is seen on the figurine representing a pregnant woman.[4] It appears that both men and women used to wear girdles and they were used both as ornaments, and to hold the loincloth, as is seen on some figurines from Harappa.[5]

1. *Indian Archaeology* 1954-1955, pl. XIV-A, 2nd from the left top line.
2. Vats—*Excavations at Harappa* pl. LXXVII-49, and also on the figurine on pl. LXXVII-37.
3. Vats—*Excavations at Harappa* pl. LXXVII-50.
4. *Ibid*—pl. LXXVII-58, pl. LXXVI-28 (The pregnant women).
5. Vats—*Ibid* pl. LXXVII-51, 53.

Mohenjodaro Culture—A number of terracotta beads of different shapes and sizes have been found at Mohenjodaro.[1] Apart from the variety of terracotta beads found at Harappa we come across corrugated beads of potttery,[2] [pl. XXVIII, fig. (i)] beads with incised marks across axial line often covered with a glaze[3] and tubular beads in imitation of long carnelian beads usually covered with a red slip.[4] Most of these beads of pottery have either red or cream slip. Some of them also appear to have been glazed.

Similar pottery beads have also been discovered from some of the other sites of Mohenjodaro Culture. From Lakhiyo, Majumdar was able to recover a long barrel type bead of terracotta.[5] Similar long barrel types have also been found from the lower levels of Lohumjodaro.[6] One of these beads has been found attached to a short barrel bead of vitreous paste which leads us to presume that pottery beads along with those of vitreous paste used to be worn strung together in the girdles.

A conical short barrel bead with incised strikes[7] and biconical long beads[8] have been found at Lohumjodaro. A terracotta biconical short barrel bead with incised strokes has also been found from Chanhudaro.[9] These beads with incised decoration appear to belong to Jhukar culture. Beads from Mohenjodaro level found by Mackay from Chanhudaro include terracotta beads with red patches.[10] These pottery beads clearly suggest that they used to be moulded. As their moulds may have been made of unburnt clay, they appear to have perished. A pottery bead square in shape with

1. Mackay—*Further Excavations at Mohenjodaro* p. 497; Marshall *M. I. C*, p. 511, pl CLII-16.
2. Mackay—*F. E. M.* pl. CXXXVI-19; CXXXVIII-16.
3. *Ibid*—pl. CXXXVI-60.
4. *Ibid*—pl. CXI-40, CXXXVI-9-17; CXXXVIII-20; CXXXIX-65, 72.
5. Majumdar, N. G.—*Arch. Surv. of India Memoirs 48* p. 78, pl. XXXIII-30.
6. *Ibid*—p. 55, Lh. 80, pl. XXXIII-1.
7. *Ibid*—pl. XXXIII-5, Lh. 200,
8. *Ibid*—pl. XXXVIII-4, Lh. 171.
9. *Ibid*—pl. XVII-37, ch. 437.
10. Mackay—*Chanhudaro Excavations* p. 206, pl. 14-30.

a middle rib has recently been found[1] at Lothal. It is a replica of similar round beads with middle ribs found at Mohenjodaro described before [pl. XXVIII fig. (c)].

The spacers of pottery have similar shapes[2] as those of faience [pl. XXVIII fig. (z-17)]. Generally these are tablet shaped long and narrow perforated with three to five holes. The girdle terminals of pottery are semi-circular in shape with several holes. They are almost like the one illustrated on [pl. XXVIII] fig. 'z 12 A'. Similar terminals have been found at Chanhudaro.[3] On [pl. XXVI] figures 'o', 'p' 'q' are illustrated some of the discs found here and described as *bullak*. On figure 'o', there is a pottery disc with double row of prickings and two holes at the top.[4] A similar disc with one line of prickings in red clay[5] and another with prickings all over[6] have been found here. They have a diameter 1 4" to 1·5" and a thickness of ·2" to ·19". On figure 'p' there is a disc with four holes two on each side.[7] This may also have been used for decorating the girdles. There is another one with prickings all over[8] circular in shape cut from the top looking like the moon during the partial eclipse These discs appear to have some amuletic value and may have been worn on the girdles as charms. Another piece of pottery which resembles a ring has also been found here. It is a beautiful piece of light red clay without the usual slip with a hole in the lug [9] Probably this piece also decorated some girdle.

Several pieces of faience have been found at Mohenjodaro which may have been used as centre pieces of girdles.[10] For example, there is a piece of faience, turquoise blue in colour, with two holes at the top.[11] It is 1·5" long and ·6" broad and would have looked

1 *Indian Archaeology* p. 7, pl. X–B, 3rd from the left central line.

2 Marshall—*M. I. C* p. 517, Mackay-*F. E. M.* p 529

3. Mackay—*Chanhudaro Excavations* p 203, pl. LXXX–23.

4. Marshall—*M. I C.* pl. CXXXIII–2; Mackay-*F. E. M.* pl. CXLII –1, 2.

5. Mackay—*F. E. M.* pl. LXXI–14.

6. *Ibid*—pl CXXXVI 80.

7. *Ibid*—pl. CXL–31.

8. *Ibid*—pl. CXL–34.

9. Mackay—*Ibid* pl. CXI–3.

10. Mackay—*Ibid*–p. 544, 545.

11. *Ibid*–pl. C–8.

beautiful on the girdle. Similarly there is a heart-shaped cast disc of bronze about 2" wide from top to bottom, with two small holes at the top. This piece also appears to have been a part of some girdle.[1]

The beads of pottery, the spacers of pottery and the bosses of faience, bronze, and pottery with worn out holes show that they were used where pressure was great and it is therefore, not wrong to assume that, they were threaded to a girdle which while serving as an ornament was also holding up the loincloth.

At Mohenjodaro we have several examples of girdles on the clay figurines. In general they are more eloborate than those of Harappa. We have on figure 'd' pl. XXXIV a girdle of three strips of metal decorated with three oblong discs in the centre below the navel.[2] On figure 'e' the girdle appears to consist of three strings of large beads. It covers the major part of the hip and the upper portion of the high in the form of a band. On figure 'f' the girdle consists of four strips with a decorated disc on the left on the hip not unlike bullacs found at Mohenjodaro mentioned before.[3] On figures 'g' and 'k', we find a simple girdle consisting of plain strips of metal going round the hip with a semi-circular disc in front. On figure 'g' we have the back view of the figurine and on figure 'k' we have the front view of the same piece. On figurines 'h' and 'i' [plate XXXIV] the front and the back side of an elaborate girdle is illustrated. The girdle consists of five lines consisting of two lines of beads and three of strips of metal. It has at the top one row of large conical round bossess in the centre. On the front there are two square pieces like the ends of the knot of a bow necktie, (figure 'h'). At the back there are two long rectangular pieces to which the strings are joined, At places spacers are also visible to keep the strings of the girdle separate. This is perhaps, the most elaborate girdle we come across at Mohenjodaro. On figure 'j' we see a plain broad girdle with three oval discs in front, while on figure 'l' a semi-circular disc is seen on the right side of the figurine's hip over the girdle of five lines and it looks like the pouch on the Scoth belts worn today. On figure 'm' there is a broad belt with a convex surface, without any orna-

1. Mackay—*F. E. M.* pl. CXL-35.
2. Marshall—*M. I. C.* pl. XCIV-14.
3. Mackay—*F. E. M.* pl. CXXXVI-80,

mentation, very much like the one seen at Harappa.[1] On figure 'n' the girdle consists of two lines of large conical circular beads.

On [Plate XXXVI] figure 'c' is a torso of a figurine found at Chak Purbane Syal. She wears a beautiful belt round her ioin, with buckles in front. It has a completely modern look. To the central pieces are joined the two ends of a broad belt. Unfortunately no girdles are seen in the figurines found at Chanhudaro from Mohenjodaro horizon.

Jhukar Culture—From Chanhudaro Majumdar has found a terracotta block with four holes[2] in size 2.4" by 1.6" by ·09". It appears to have been used as the central part of a girdle. The holes of this piece have become distorted by use. Terracotta beads of long barrel shape [pl. XXXIX. fig. (e)], with a length of 3.1" and a terracotta biconical short barrel bead with incised decoration of concentric circles have already been described, [pl. XXXIX fig.(j)]. They all appear to belong to Jhukar horizon. Some of the amulets of pottery found at Chanhudaro by Maekay may also have been used as girdle discs, for example the one on plate XLII, fig. 'a' and the bullac on [pl. XXXVIII] figure 'e'. Another pottery disc has been found here which may also have been the central part of a girdle, [pl. XXXVIII, fig. (d)]. The pottery beads of Chanhudaro[3] which can be assigned to Jhukar Culture are those decorated with incised lines and strokes. At Jhukar also from the upper levels, terracotta blocks with decoration of red dots have been found by Majumdar in shape almost like the one described before. It has eight holes[4] and measures 2·8" by ·8". Another terracotta piece is in the shape of a buckle. It is also decorated with red dots[5] and is almost 2" with six holes, These pieces may have also decorated the Jhukar girdles.

Jhangar Culture—The beads of pottery found at Jhangar level have already been described before in connection with the neck

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1. Vats—*Excavations at Harappa* pl. LXXVII–52.

2. Majumdar—*Arch. Surv of India Memoirs* 48 pl. XVII–32. This piece is described to have five holes but only four holes are visible.

3. Mackay—*Chanhudaro Excavations* pl. LXXXIV–14–30

4. Majumdar—*op.cit.* 48 p 15, pl. XV–20 (though described as having nine holes).

5. *Ibid*—pl. XV–19.

ornaments. No other parts of girdles from this level have been found.

A girdle in ancient times was an Utilitarian piece, for it did not only serve to decorate the person of the wearer but also to hold the loincloth in place. It is, therefore, that we find girdles on various terracotta figurines of the West as mentioned before. Its emergence as a piece of ornament must have been quite early because of its wide use. From a simple flat metallic band it appears to have taken the complex shape we see on fig. 'h', 'i' [pl. XXXIV]. Its stages of development appear to be from flat broad strip of metal to several strips of metal, thence to bead and strip girdle and thence to bead girdles. All these forms we come across here as detailed before.

CHAPTER VIII

FOOT ORNAMENTS AND OTHER PIECES OF JEWELLERY

As most of the clay figurines found in the Indus Valley and Baluchistan are legless, it is difficult to find what types of foot ornaments were worn. It is from the few representations that we can make some deductions. Skeletons with anklets of paste beads which have been found at Harappa,[1] and a bronze foot wearing a curved bangle at Mohenjodaro[2] lead us to presume that foot ornaments were also in use in the Indus Valley Civilization.

Quetta Culture—No evidence of foot ornaments of Quetta Culture is available and it cannot be said if any ornaments were worn by the early rsidents of the Indus Valley civilizaticn on their feet.

Amri-Nal Culture—No foot ornament appears to have been found from Amri, Ghazi Shah, Pandi Wahi, Shah Hassan, Dhal, Nundara or Nal.

Zhob Valley Culture—Only one figurine found at Dabar Kot has the lower portions of the body intact, [pl. IV, fig (g)] The figurine has round bangles with convex surface on the feet. The other figurines are legless.[3]

Harappa Culture—The clay bangles of Harappa are illustrated here [pl. IX–B] and it is just possible that those with a diameter of more than 3·9″ may have been used as foot rings[4] It can be presumed from the examples discovered that they used to be glazed. Foot ornamants are not commonly seen on the clay figurines of Harappa as most of them are without legs. Vats has, however, found a terracotta pedestal with a pair of the fore-paws of a figurine.[5]

1. Wheeler—Harappa, *Ancient India No. 3*, p 86.
2. Mackay—*Further Excavations at Mohenjodaro* p. 273, pl LXXII–5.
3 Piggot –*Pre-historic India* p 126.
4. Wheeler—Harappa, *Ancient India No. 3* p. 124, pl. LIV–B; Vats—*Excavations at Harappa* p. 448.
5. Vats—*Excavations at Harappa* pl. LXXVI–25.

The anklets here appear to consist of broad bands [pl. XVII, fig. (q)]. A similar terracotta pedestal has been found by Wheeler.[1] Here only traces of an anklet are visible which come up to the front part of the fore-paws.

Mohenjodaro Culture—A number of terracotta bangle fragments have been found at Mohenjodaro also.[2] Some of the plain terracotta bangles may have been worn on the feet. Mackay is of the opinion that some of these may be anklets[3] especially those with a diameter of 3·9″ and over. From Lakhiyo, a terracotta bangle fragment of a diameter of 3·9″ has been found.[4]

The foot ornaments seen on the figurines of Mohenjodaro are illustrated here [pl. XXXIV]. On figure 'a' there is a well preserved foot of bronze. The anklet consists of a curved ring on which there appears some design which is not quite clear. On figure 'b', there are the feet of a terracotta figurine.[5] The anklets consist of two round rings perhaps welded together to form one piece. They are worn a little over the anklets. The bronze figurine found by Marshall has, however, no feet.[6] On the feet of the bronze figurine found by Mackay,[7] however, some traces of anklets are visible, (fig. 'c') but nothing can be said with certainty as it was found badly encrusted. On the stone statute found by Mackay there are some depressions which suggest that the figure had anklets of beads.[8] On another pottery figurine found by Mackay there is an anklet well above on the leg which has an ornamentation of incised circle.[9]

Anklet on the bronze foot fig. 'a' resembles the anklets on most of the figures in a fresco at Knosses.[10] Though these are of a later

1. Wheeler—Harappa, *Ancient India No. 3* pl LVII–17.
2. Mackay—*F. E. M.* p. 533; Marshall–M. *I. C.* p 530 pl CLII–11; CXXXVI–7
3. Mackay—*F. E. M.* p 533.
4. Majumdar, N. G.—*Arch surv. of India Memoirs 48* p. 77 LK. 15.
5. Marshall—*M. I. C.* pl. XCV–26.
6. *Ibid*—pl. XCIV–6.
7. Mackay—*Further Excavations* pl. LXXIII–10.
8. *Ibid*—pl. LXXI–30.
9. *Ibid*—pl. LXXV–10.
10. Evans—*Palace of Minos* Vol. II, p. 723, 726, figs. 450, 454.

date than the Mohenjodaro example yet from them it can be presumed that they may be the successors of some earlier types. Anklets of small gold beads were also worn by the Egyptians in the prehistoric times.[1] The anklets are supposed to be of an Asiatic origin and were worn as a sign of dignity.[2] This custom prevailed in Rajput courts till 1950 where *Tāzīmī Sardārs* were granted gold anklets to distinguish them as men of higher rank. These *Sardārs* wore the anklet on their right foot like the Hittite officials seen in the stone carvings found by Koldewey at Babylon.[3] Anklets of beads were worn by the people of Sumer also as is seen in the burial finds of Jemdet Nasr period.[4] A Sumerian figure on a gold vessel from Astarabad is also seen wearing anklets on both feet.[5] No toe rings are seen in the few pieces where the forepaws of the feet are visible. A terracotta ring found at Lakhiyo has a diameter of 1.8". It has still traces of paint on it and may have been as a toe ring because otherwise it would not fit any finger.

Jhukar Culture—The clay rings found at Chanhudaro are of several sizes. Those with roughly joined ends without the usual glaze may have been used as foot bangles.[6]

Jhangar Culture—No foot bangles of this culture are reported so far. We may thus conclude that the people of Mohenjodaro and especially women wore anklets on their feet as did the Egyptians and the Sumerians. The custom of wearing anklets, however, was more common in the east than in the west.[7] These anklets sometimes were made by strtnging together beads of pottery or paste almost like our *jhūlara* with *ghungharū* (bells) and sometimes by moulding large pottery rings as hollow bronze bangles round and

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1. Petrie—*Arts and Crafts of Ancient Egypt* p 84
2. Evans—*Palace of Minos* Vol II, p 726-7
3. Koldewey—*Excavations at Babylon* p 165, fig 103-4. He also found skeletons having three to five anklets on each leg at Merkes, Babylon. *Ibid.* 266, fig. 187.
4. Woolley—*Antiquities Journal* Vol. XIV, p. 370.
5. Rostovtzeff—*Journ Eng Arch.* Vol. VI, pl III-1; p 9.
6. Majumdar—*Arch Surv. India Memoirs* p. 78; Mackay—*Chanhudaro Excavations* pl. XC-29-29, LXXVII-12.
7. Hotept—The wife af Amenemhet of the 12th Dynasty wears anklets, which have a metallic look, Newberry-*Beni Hassam.* Vol. I, pl. XVIII.

curved like our *kaṛā* and *khaḍuā*. The examples of foot ornaments being few it is difficult to trace their development.

Buttons and Other Pieces of Jewelery—Buttons have been found in the Indus Valley which were probably used for decorating the clothes. We do not, however, know if the people of Mohenjodaro used sewn clothes. There are, however, one or two figurines of terracotta on which we find some clothes which look sewn.[1] Needles of bone have been found at Periano Ghundai[2] and Kulli[3], and gold ones at Mohenjodaro, [pl. XXIII, fig. (k), (l), & (m)]. They would be of little use if sewn clothes were not in fashion. The decoration on the wrapper of the bearded man of Mohenjodaro[4] is evidence positive of the fact that the people of the Indus Valley were conversant with the use of the needle. It is therefore, not improbable that buttons used to be sewn to the clothes. No buttons have been found in Quetta or Amri-Nal culture. From the Zhob cultural sites a bronze button has been found at Kundani.[5].

Kulli-Mehi Culture—A stud with circular depressions on its face has been found at Mehi also. It is described as a button, [pl. VII, fig. (v)], but it looks more like a pendant of a necklace than a button as suggested before.

Harappa Culture—Of the buttons found at Harappa one is illustrated on [pl. IX, fig. (x)]. This is of faience and is in the shape of a convex disc with a small hole at the bottom for the thread to pass. Its surface is decorated with incised circles and dots and round the edge there is cable ornamentation. On figure 'y', there is another button of steatite .4″ in diameter and on figure (z–3), there is still another one of steatite .3″ in diameter. On the face of both these buttons there is similar ornamentation.

Mohenjodaro Culture—A number of buttons have been found at Mohenjodaro.[6] They are of different materials, silver, bronze, copper, steatite, faience and vitreous paste. Most of them are alike in form and look like the modern back collar buttons. They have a

1. Vats—*Excavations at Harappa* pl LXXVI–19.
2. Sri Aurel Stein—*Arch. Surv. Ind. Memoirs No.* 37 p. 39.
3. Sir Aurel Stein—*Arch. Surv. Ind. Memoirs No* 49 p. 123.
4. *M. I. C.* pl. XCVIII–1, 2, 3, 4.
5. Sir Aurel Stein—*Memoirs* 37 p. 42, pl. K. 18.
6. Marshall—M. I. C. pl. CXL–19; CLV–5–7, Mackay–*F.E.M.* p. 542.

raised top and a loop at the back with holes to take the thread [pl. XXVI-(s), (t), (u), (v), (w). (x), (y); & (z)].

The copper buttons were evidently beaten into domes .2" high and then a small piece was pressed to form a projection. This projection was pierced to provide holes for being sewn to the cloth. Some of the dome-shaped copper pieces with .5" diameter and .25" thickness and minute holes near the edges may have been used as buttons.[1] The faience buttons are of two varieties, one with a plain top like the button of Steatite on [Plate XXVI] fig. 'z' and another with small bosses, figs. 's' and 't'. Some of these have small cavity in the base bridged across with another piece [pl. XXVI fig (t), the others have flat bases with converging holes. A blue faience button with a boss in the centre and double row of prickings is on figures 's' and 't'. It has a diameter of 1" and is ·36" thick. The back of the button is shown on figure 't'. It has a loop at the back. On figures 'u' and 'v' there is another button of turqoise blue vitreous paste The obverse is slightly rounded and has a boss in the centre. It has a flat reverse side. On figure 'w' is illustrated a white steatite button with ·99" diameter and ·22" thickness with the converging holes in a flat base.

On figure 'x', there is another white steatite button. It has also traces of green glaze on it and is 1·1" in diameter and ·2" in thickness, obverse slightly rounded, reverse flat with converging holes. Another button found here is of cream coloured paste with a V shaped hole. It has a slight depression on the face which was probably filled with red paint.[2] On figure 'y', there is a small faience button with a dome top and two coverging holes in the flat base while on figure 'z' the button is of the same shape as the former are but is larger, being 1·25" in diameter and is of steatite.

At Chanhudaro also faience buttons and those of steatite have been found from Mohenjodaro level.[3] They are also of two varieties, one with a plain top[4] and another with a small knob.[5] Among the knobbed variety also there are two types. The knob in one case is half rectangular in shape, [pl. XXXVIII-(f-1)] and in

1. Marshall—M. I. C. Vol. II, p. 523.
2. Mackay—*F. E M.* pl. CXXXVI-72.
3. Mackay—*Chanhudaro Excavations* pl. LXXVII-3, 9, 7, 14.
4. *Ibid*—pl. LXXVIII-3, 4, 7.
5. *Ibid*—pl. LXXVII-5, 6.

the other almost half hexagonal, fig. (f-2). Perhaps they were coulded and before being glazed the base was roughly scooped out leaving a bar to bridge the gulf. The bridge was perforated to take the fastening [pl. XXXVIII figure (f-3)]. From the plain top, the knobbed top variety must have developed and then this knob may have taken a hexagonal shape. Generally these buttons have a glaze. Though not quite like those of Mohenjodaro culture but similar buttons with converging holes have been found in Neolithic Malta, Megalithic Portugal, Catalonia, Sardinia and Southern France.[1]

Jhukar Culture—Buttons of the upper levels of Chanhudaro are altogether of a different type[2] [pl. XLII fig. (k), (l)]. They have a glaze which has faded to cream colour. Their average height is ·6", and edges are slightly concave. The base and the body are carefully drilled to let the thread in. The button on figure 'k' is decorated with a chavron pattern similar to the seen on the hair pin.[3]

A small button of steatite with perforated projection at the base has also been found at Chanhudaro.[4] It is decorated in prickings. This piece is also of Jhukar Culture.

Jhangar Culture—No buttons are reported from Jhangar level.

We can thus safely conclude that buttons were used by the people of the Indus Valley. Their development seems to have been from hemispherical buttons with loops at the base to those with holes in the base and the body. The latter type belongs to Jhukar culture.

Brooches—We are not certain how the brooches were worn but several of them have been found It is possible that they were used to decorate the hair or to hold the upprr cloth of the type we see the bearded man of mohenjodaro[5] wearing on the upper part of his body.

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1. Fleure & Peake—*Journal of Royal Anthropological Inst.* Jan.–June 1930, p. 53.
2. Mackay—*Chanhudaro Excavations* pl. LXXXVIII–12–15.
3. *Ibid*—pl. LXXII–18, 19.
4. *Ibid*—pl. LXXVIII–9.
5. Marshall—*M. I. C.* pl. XCVIII–1.

Harappa Culture—In the hoard described by Vats,[1] there are several pieces which look like brooches, [pl. VIII fig. (1), 'm' and 'n']. The ornament on figure 'n' has already been described before and is a pendant of a necklace. This beautiful heart-shaped piece is in the National Museum of Delhi and even a cursory examination can show that it is a pendant. The ornament[2] on figure 'm' in the form of figure 8, however, appears to be a brooch for the bun of the women as we see on one of the figurines of Harappa.[3] The ornament on figure '1' looks like a brooch. Two such pieces have been found. Each is composed of twenty seven hollow beads of gold arranged in three rows, and each one of them has a hook at the back soldered to the piece which shows that the ornament was used for holding the upper garments like the togas of the ancient Romans. The six petalled piece of faience described by Vats [pl. IX fig. (z)] as a broach is most probably the centre piece of a girdle, The piece of faience (pl. IX-z-1) in the shape of four pointed star also appears to be a girdle piece.

Mohenjodaro Culture—No metallic piece found at Mohenjodaro can be identified as brooch. There are some faience pieces, however, which may have been used as brooches for example the flat dome-like piece found by Mackay.[4] But they also look more like big buttons than brooches.

Jhukar Culture—No piece found at Chanhudaro can be definitely described as a brooch though it is possible that some of the faience decorated pieces described as amulets may have been used as brooches.

Perhaps brooches were not in fashion in the Indus civilization and the few pieces that can be definitely assigned as such may have belonged to foreigners.

In-lay Pieces—The craftsmen of the Indus civilization not only knew the art of ornamentation of jewelery by embossing, carving and cutting designs but also the art of inlay. Like their Sumerian counterparts they appear to have been quite conscious of the

1. Vats—*Op. Cit.* p. 63–64.
2. Such figures are carved on the table of libation with six judges from phaestus. Nilsson, M. P.–*The Minoan Mycenæan Religion* p. 129, fig. 30.
3. Vats—*Op. Cit.* pl. LXXVI–24.
4. Mackay—*F. E. M.* pl. CXXV–17.

accentuation produced by inlay work in a piece of jewellery. Nothing, however, as elaborate as the shell inlay pieces of Ur[1] have so far been found in the Indus Valley and Baluchistan.

From Mehi a bronze pin has been found with a bead of lapis lazuli at its top, which leads us to presume that semi-precious stones also used to be studded to metallic pieces [pl, VII fig. (m)].

When, however, we come to Harappa we get still better examples of the craftsmanship of the Indus Valley Civilization. A pendant found at Harappa, fig. (a) in the shape of a lotus is inlaid with pieces of lapis lazuli and of red stone. The red stone, however, exists only on one of the leaves. Perhaps, there was another piece of inlay in the centre of this pendant.

The heart-shaped pendant. [pl, VIII fig. (n)] described before has three lines of faience embedded in the piece which originally must have been of blue colour. Similarly decorated is the piece in the form of figure 8, [p'. VIII fig. (m)].

Shell inlay pieces found at Harappa are on figs (z-2), (z-4), (z-5), [pl. IX]. On figure (z-2) the piece is in the shape of a four pointed star. On figure (z-4) the shell inlay piece is in the shape of heart. Similar patterns were also popular in other parts of the world[2]. It may have been embedded in another piece of pendant llke the heart-shaped pieces referred to before. The third piece has carved linear decorations on it, fig. (z-5). Several such pieces have been found at Harappa. Some of the smaller pieces appear to be for inlay. A conical boss of silver has also been found at Harappa which is inlaid with a cylindrical piece of shell[3]. An ivory bead-like piece is also reported from Harappa. It is round flat disc-shaped divided into zones by linear ornamentation. This piece appears to have been inlaid in some other ornament.[4]

Mohenjodaro Culture—Several pieces of inlay have been found at Mohenjodaro which are mostly of shell. Some of these pieces

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1. Childe—*A New Light on the Most Ancient East* pl. I; Hrozny—*Ancient History of Western Asia* pl. III.
2. Childe, G.—*A New Light on the Most Ancient East* p. 181.
3. Vats—pl, CXXV-51,
4. It is preserved in the National Museum Delhi. Vats—*Ibid.* pl. CXXVIII-31.

are cross-shaped,[1] similar in motif to those seen on Kassite seals, in Elam, and in Crete.[2] Then there are stepped pieces,[3] petal-shaped pieces[4] and heart-shaped pieces.[5] Evans suggests that the heart-shaped motif represents the seed vessels of *silhūm*, an umbelliferous plant now extinct. Its nearest variety is represented by northex found in the north of Kashmir.[6] Then there are fretted roundels.[7] A similar design is seen on some of the potsherds from Nal[8] and is also carved on the gaming hoard of Crete.[9] Pieces representing the eye have also been found[10], but they appear to have formed part of some elaborate design. Then there are cut pieces of shell[11] with a motif which reminds one of those which we find on the painted plaster frieze of the palace at Nimrud, Babylon.[12] There are lozenge shaped pieces[13] and pieces in the shape of leaves.[14] Some of the carved pieces of shell found at Mohenjodaro may also have been used as inlay pieces.

A beautiful piece of ivory found at Mohenjodaro is illustrated on pl. XXVIII-A fig. 'r'.[15] It is just possible that it may have been an inlay piece, for the way it has been cut suggests that it was meant for being fitted in some other ornament.[16] It appears that depressions in the fretted pieces used to be filled with coloured paste either red or black to produce an enamel effect. Such pieces

1. Marshall—*M. I. C.* C-pl. CLV-34; see also Sir Aurel Stein—*Arch. Surv. of India Memoirs* 37 pl. XVI, Dnd. 28.
2. Evans—*Palace of Minos I* p. 515, fig. 375.
3. Marshall—*M. I. C.* pl. CLV-36, 37.
4. *Ibid*—pl. CLV-26-28.
5. *Ibid*—pl. CLV-38-47.
6. Evans—*Palace of Minos* Vol. I, p. 284-5
7. Marshall-*M. I. C.* pl. CLV 48, 49.
8. Hargreaves—*Arch. Surv. of India Memoirs 385* pl. XX-d.
9. Evans—*Palace* of *Minos* Vol. I, pl. V
10. Marshall—*M. I. C.* pl. CLV-52, 54, 55, 56.
11. Marshall—*M. I. C.* pl. CLV-58 etc.
12. *Manual of Oriental Antiquities* p. 125, fig. 87-16.
13. Marshall—*M. I. C.* pl. CLV-57.
14. *Ibid*—pl. CLV-61.
15. Mackay—*F. E. M.* pl. CXXXVI-62; Marshall-*M. I. C.* pl. CLVI-4, 6.
16. Mackay—*Ibid* pl. CV-44.

where coloured paste is still sticking have been found at Mohenjodaro.

At Chanhudaro not many pieces of shell inlay have been found The two pieces from mound No. I are 1·5" to 1·36" long and have deeply incised linear decoration on them,[1] [pl. XLII, fig. (t)].

Stone Inlay pieces found at Mohenjodaro are generally of steatite. One is in the form of pipal leaf of glazed green steatite, another has branches of a tree on a piece;[2] a third is in the form of sickle with dented edge at the curve.[3] A brown limestone inlay piece has also been found which is fluted on one side.[4] Bone and faience pieces, have also been found at Mohenjodaro. The shell inlay pieces are slightly levelled, perhaps for keying, their thickness varying from piece to piece, perhaps due to the difficulty in working this material[5] to an uniform thickness. There is no doubt that the shell inlay pieces were cut in Mohenjodaro as is evident from the workshops of shell workers found here.

The method of inlaying was perhaps the same as is followed in some parts of India today. The workers first made depressions in the piece either by pressing, if the material was soft, or by carving when it was hard, by means of drill, and then fixing the inlay pieces with a cement. In the Indus Civilization the cement they used was most probably gypsum[6], for its powder has been found sticking to a piece[7]. This material is still used for inlaying shell, and ivory, as it is white and does not discolour the inlay. The craftsmen are extremely cautious when dealing with a white material and do not use any coloured cement. The rarity of ivory inlay pieces is perhaps due to the fact that elephant was supposed to be a sacred animal as suggested by Mackay[8], for otherwise there could not be any dearth of ivory as its supply was plentiful[9].

1. *Ibid*—pl. CXLII-32, 38.
2. Mackay—*F. E. M.* pl. CXLI-16.
3. *Ibid*—pl. CXLI-25.
4. *Ibid*—pl. CXLI-1.
5. Mackay—*Ibid* p. 582.
6. Marshall—*M. I. C.* Vol, II, p. 566.
7. Marshall—*M. I. C.* pl. CLV-48.
8. Marshall—*M. I. C.* Vol. II, p 533.
9. Mackay—*F. E. M.* p. 579

From the shell inlay pieces found at Mohenjodaro it can be presumed that the practice of portraying animals and figures, quasi geometrical designs and scenes, was known to the shell workers of the Indus Valley but so far no elaborate piece of inlay has been found here like those of Sumer.

CHAPTER IX

INDUS JEWELLERY MANUFACTURERS AND THEIR CRAFT

The shop of the Indus valley Jeweller in the centre of the town must have been the rendezvous of the debutante, the elite and the fop of the city ever eager to adopt new designs of ornaments and new angles of wearing them. A shop in the long block of buildings in the heart of Mohenjodaro described by Mackay as the residence of a very high official[1] may have served his purpose best, in order to attract customers who would have thronged his shop, as much for purchasing new Jewellery as for having small chats with this well travelled citizen. For his visits to distant lands[2] like Persia, Mesopotamia and Syria may have been frequent and regular not only to sell the manufactured articles of his town like beads[3] and ungent pots but also to collect pieces of interest like the decorated black glass-bangles with three layers of cobalk blue, brown, and yellow fused together found at Sutkagen Dor[4] or the bronze pin found at Chanhudaro[5]. Enviable must have been his position in the town and many a times his safe would have been rifled[6].

We get a reference to the existence of Indian merchants in Babylon on one of the tablets found at Nippur which records the transactions of Murashu's business house with Indian merchants[7] as

1. Mackay—*F. E M.* Vol. I, p. 10.
2. Wheeler—*The Indus Valley civilization.* p. 76. piggott—*Antiquity* Vol XVII, 169-182.
3. Frankfort—*Ann. Bibl. Ind. Arch.*, Vol. VII (1932), p. 8.
4. Sir Aurel stein—*Arch. Surv. of India Memoirs* 43, p. 163, pl. VI, SU. 12a Similar bangle fragments have been found at pre-Historic mounds of seistan—*Inner Most Asia* II, pp. 963-964
5. Piggott—Metal pins and Mace, Heads—*Ancient India*, No. 4. pp. 26.40.
6. Piggott—*pre-Historic India*, p. 186 jewelry hoard formd Under pavement of workmen's quarters leads us to the conclusion that the safe of the jeweller was rifled.
7. J. Kennedy—The Gospel of the Infancy—*J. R. A. S.* 1917, p. 237; Rev. A. T. Clay—Business Documents of Murashu and sons—Introduction p. VIII-IX,

well as the story of Indian merchants in Babylon in *Bāvrū Jātaka* probably based on some earlier traditional accounts of the visits of Indian Jewellers to distant lands[1]. We also come across the word *vanij*—the merchant, in *Rgveda*[2] and *yajurveda*.[3] The stories of these adventerous jewellers after their return with loaded purses from foreign lands would have helped to create in Ancient India a great number of beliefs in the magical efficacy of his products. These beliefs would later have got religious sanction For, such is always the case with dogmas and beliefs which elude reason in a primitive age. but get firmly emedded in men's mind on supposed benefits creating the bases for many of the religious ceremonies all over the world. Who knows for how many of our present day beliefs in symbols we are indebted to the jewellers of the ancient Indus Civilisation for they must have travelled far and wide to get their supplies of gold, silver and the beautiful stones which the excavators have found here.

The art of the jeweller then as it is today probably. did not consist only in differentiating between the real stone and the fake or determining the alloy contents of the precious metals, but also in conceiving the design and the forms of ornaments and getting the fine stones and metal for them. He may have been his own designer in those days as he is even today in most parts of Iudia. It is he who must have given concrete shape to the vague beliefs in super-natural forces of material objects and their forms The search for the varying intensity in the amulatic powers of various designs and forms of ornaments such as etched beads heart-shaped pendant etc must have helped him to establish his trade in co-operation with religious heads who in their turn may have also benefitted.

It is probable that it is he who must have worked out the design of the heart-shaped pendant found at Harappa [Pl. VIII, fig- (n)] or the ladies bun ornament in the form of figure 8 from the same site [pl. VIII, fig. (m)] or the necklace found at Mohenjodaro with seven pendants [pl. XXI, fig. (a)] or the copper ear-pendants

1. Cowell, E. B.—*The Jātaka*, (Cambridge Ed.) III–339, Kennedy. The Early Commerce of Babylon with India—*J. R. A. S* *1898* *Art. XVI* p. 268; p. 270; Radha Kumud Mukerji—A History of Indian Shipping and Martime Activity from the Earliest times. p. 74.

2. R. V. 1,112, 11, V. 45, 6. *Vājasaneyi samhitā* XXX–17

3. R. V. II, 48, 3

with tulip-shaped ends of Chanhudaro [pl. XXXVIII. fig. (i)] not to speak of the various other beautiful ornaments described in the foregoing pages. After making his designs he would have passed them on to his craftsmen working under him, like the goldsmiths the coppersmiths, the bead makers, the polishers, the threaders etcetra, for, until very recently in Europe and in India the jewellers used to have a number of craftsmen working under their individual direction. It is, therefore, not unreasonable to suppose that this system might have prevailed in the old days also.

Under these conditions it is the jeweller who must have supplied his craftsmen with material to make the jewellery after the pattern given by him. The Craftsmen would have seldom gone out of the country and often would not have known the sources of supply of the various precious metals and stones. As will be seen in the next chapter, the jeweller probably used to get his gold and silver from such distant places as Afghanistan near *Kāndhāra*, copper from *Khetri* in *Rajputana*[1]; Hematite for the red paste from the Islands in the Persian Gulf near *Hurmuz*; steatite, Jasper, and bloodstone from *Rajputana*; amethyst, green felspar. or amazonite from Hirapur plateau, north of Ahmedabad[1] and Jade from Eastern Turkistan or from Tibet. Similarly he probably got from *Kathiawar*, his shell agate, carnelian, onyx, chalcedony and rock crystal[2]. Likewise he perhaps obtained lapis lazuli from *Badakshan* in Afghanistan and Turquoise from *Khorasan*. The sources of material have always been kept secret and even today they are known only to the jeweller who travels like his ancient counter-part from place to place in search of his material at prices most favourable to him.

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1. Wheeler—*The Indus Civilizations* p. 58, analysis of the material; Marshall—*M.I.C* Vol. II, p 484, Prof. E. Ball an eminent geologist is of the opinion that the Indus itself as well as some of its tributaries, is known to be auriferous . and that the amount of gold derived from indigenous sources must have been very considerable before the alluvial deposits were exhausted of their gold." *Asiatic Nations* (Botim Ed.) vol. II p 32.

1. D. H. M. E. Gordon—*Iraq* VII (1940), corrects Marshall—*M. I. G.* Vol. II, p. 546; R. K. Mukerji—*J. U P. H. S.* Vol. XIII. Part II 1940 pp. 17–10.

2. Piggott—*Pre-historic India* p. 175.

Of special interest are the weights of the jewellers[1] cubical and long barrel shaped which have been found at Harappa and Mohenjodaro which go to prove that they did exist in these towns. These weights are of chalcedony, hornblende and chert. The square weights are almost like those used by the jewellers in India today. Made of hard stone they could stand the wear and tear and avoid loss of weight. Strangely enough they are based on the same ratio as is prevelent today in India, that is 2, 4, 8[2]. A similar ratio was prevelent in Sumer[3], which indicates that the two merchant communities had adopted a common system of weights for purposes of exchange of goods between these distant lands. (Similar square weights are visible on punch marked coins also)[4] The bead shaped weights suggest that the price of beads was calculated on the basis of the base like that of pearls today.

A copper bar at the perfect end of which, a notch is visible, has also been found at Mohenjodaro in association with metal pans.[5] Balance beams of a similar form are still in use in India and jewellers transacting business in millions per week also use them. These beams are made of iron today and the pans are of brass or in some cases of silver. Some of the pans are very much like the pans of the present day balances with edges turned out[6]. Another set of copper pans with a bronze beam[7] was found in a copper canister[8], a circumstances not unusual, for, the merchants even today preserve their scales with great care and worship them on the *Divaliday*.

1. Marshall—*M. I. C.* Vol. II, p. 596–598, Mackay—*Chanhndaro Excavations* pl. XC–29–32.
2. Hemy, A. S.—*System of weights*; Mackay—*Further Excavations* p. 60, weights at Chanhudaro Hemmy Mackay, *Chanhudaro Excavations* p. 236–251, pl. XCI, 29–31; weights cubical–Mackay—*F. E.* M. pl. CV–2; CXI–62 for metal barrel shaped weight for beads–*Ibid*–pl. CX–4; CXI–75 etc.
3. Frankfort—The Indus Civilisation the Near East–*Ann. Bibl. Ind. Arch.* Vol: VII–(1932), p. 0.
4. Durgā Prasād—Classification and significance of the symbols on the silver punch marked coins of Ancient India, Numismatic supplement No. XLV, (1934) pl. 27. fig 114.
5. Mackay—*Further Excavations* p. 477, pl. CXXXII–7.
6. *Ibid*—pl. CXXI–28.
7. *Ibid*—pl. CXXXII–7, 9.
8. *Ibid*—pl. CXVI–3.

Gold-Smith—Under the direction of the jewellers may have worked the goldsmith of the Indus Civilization. He was not a very inferior craftsman compared to his Sumerian counterpart who is said to have possesed the knowledge of all processes of dealing with gold except those implying chemical knowledge.[1] The Indus Valley goldsmith knew how to mould, make thin sheets of gold, draw wire, mix alloy of copper and silver[2] with gold, solder gold by applying inferior molten metals[3] like the Egyptian goldsmith[4], box plait his sheet for giving it the spring[5], decorate his ornaments by hammering in designs *en repussee* and by inlaying his jewellery with shell[6], coloured stones[7] or faience[8].

Some of the tools of the goldsmith found in the Indus Civilisaation include short-stout chisel, short pointed chisel[9], small saw[10], copper knife[11], copper borer[12], copper drills for making holes[13], copper spatula[14], copper tube for blowing fire[15] and hammer stones[16] to make thin sheets out of ingots. These are very much like the tools of the Egyptian goldmith.[17]

A few of the pots found at different sites resemble very much the small crucibles used by gold-smiths in India today, especially the small ones with convex bellies[18]. Such pots containing metal

1. Woolley—*The development of the Sumerian Art* p. 75.
2. Mackay—Arts and Crafts in the time of Mohenjodaro-*Indian Arts and Letters* Vol. XIII, No. 2 (1939), p. 85.
3. The loop in the golden Cap is soldered. Marshall-*M. I. C.* p. 519.
4. Vernier-Emile—*La Bijouterie et La joillerie Egyptiennes* p. 68.
5. Marshall—*M. I. C.* p. 522.
6. Vats—*Excavations at Harappa* pl. CXXV-51.
7. *Ibid*—pl. CXXXIX-7.
8. *Ibid*—pl. CXXXVII-8.
9. Mackay—*Further Excavations* p. 474, 475.
10. Childe—*The Most Ancient East* p, 177, 178.
11. Majumdar—Arch. Surv. of India *Memoirs 48* p. 58, pl. XLI-31.
12. *Ibid*—p. 44, pl. XLI-12.
13. Mackay—*Further Excavations* p. 475, pl. CXXXI-6.
14. *Ibid*—pl. CXXI-33; CXXX-11; CXXXIII-18.
15. *Ibid*—pl. CXXXII-20.
16. *Ibid*—p. 393, pl. CXI-80.
17. Vernier—*op. cit.* p. 57, fig. 9.
18. Mackay—*F. E. M.* pl LIII-37.

were perhaps put in fire pots full of charcoal[1]. Evidence of the of the use of charcoal has been found at Mohenjodaro[2] and it is possible that the goldsmiths might have been employing the same process of melting thin gold pieces as they do today. Some of the crucibles found at Dabarkot by Sir Aurel Stein, are of particular interest[3], one of these being 5" high. Its base is pierced by four holes which meet in a small cavity below the centre. Perhaps these pots were manufactured to get more heat inside the pot by radiation and may have been used for melting gold which requires considerable heat[4]. This was not a solitary example. Several such peices were found by Sir Aurel Stein. Of interest are the half tubes of pottery found at Mohenjodaro[5] which appear to have been designed for moulding the ingots of gold. Molten metal dropped into it and shaped with spatula may have quickly assumed the shape required. At Chanhudaro a spoon of pottery has been found oval in shape with a portion of the handle still intact. It measures 4.6" in length. The spoon is quite shallow and may have been used by the goldsmiths for handling molten gold[6].

The most common method of making gold ingots appears to have been first to melt gold in small crucibles with *sohāgā* (borax). placed on an open earthen pot full of charcoal. Borax makes gold melt at a low heat. The goldsmith used to blow the fire with pottery tubes like his Egyptian brother[7]. The molten metal was probably then poured in half clay tubes, as is done even now, to make ingots. These were hammered into sheets and later cut into desired shapes by means of chisels and stone hammers. The designs on the pieces were probably made with pointed chisels.

For moulding pieces like beads[8] they would have employed unburnt clay moulds dried in the sun which break when pieces are taken out of them and enable the goldsmith to get out his pieces

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1 Mackay—*Further Excavations* pl. LXIV–37.

2. *Ibid*—p. 451 (·footnote-2)

3 Sir Aurel Stein—*Arch. Surv. Ind. Memoirs* 37 p. 60, fig. 20.

4. Vernier, Emile—*La Bijouterie et la Joilleries Egyptiennes* p. 68.

5. Mackay—*Further Excavations* pl. CIV–19.

6. Mackay —*Chanhudaro Excavations* p. 221, pl. XCII–25.

7. Vernier, Emile—*op. cit.* p. 52.

8. Marshall—*M. I. C.* pl. CXLVIII–7,

untampered. It is, therefore, that no moulds have been found. Mackay's suggestion that these moulds were probably made of wood[1] does not appeal as such moulds would burn when one would pour metal into it. For boxplaiting probably he used smooth balls of hard stone which have been found here.[2] Such box plaiting has given the fillets of Mohenjodaro the spring they have. These used to be decorated afterwards by punch marks or embossed designs. Similar devices were in use in other countries[3] also for the ornamentation of fillets.

In order to produce gold wire the goldsmith perhaps employed the same method as was done in Egypt viz. by passing a thin piece of heated gold through the holes of previously prepared stone pieces[4] and stretching it with tongs. Similar process is still employed in India for drawing gold wire. In order, however, to have thin metal wire one has to employ several stone pieces with holes of varying diameter and heat the wire each time it is passed through the hole. There is no doubt that the goldsmiths of the Indus Valley knew how to make gold wire, but they could not produce thin ones like the Egyptian goldsmiths about whom Emile Vernier says, '*Ils employaient des fils pour construire des objects d'une finesseet d'une legerete rares............*'[5].

For cutting out weight, and for producing cheap jewellery, the goldsmith of the Indus Civilization used to make hollow pieces of ornaments like bangles with thin sheets of gold which he first bent into tubes and then gave shape as they do now[6]. Afterwards these tubes were soldered and filled with a resinous substance[7] like lac, traces of which have been found in one of the pieces at Mohenjodaro. Often gold sheet used to be wrapped also on copper or bronze base[8] which must have given the illusion of weight. As

1. Mackay—*F. E. M.* p. 528.
2. Mackay—*Ibid* p. 396, pl. CV–19.
3. *Ibid*—p 527, pl. CL–a 4, 5; Schmidt –*Tape Hissar.* pl. CXXIII (a), (d).
4. Vernier, E.—*La Bijouterie etc.* p. 58.
5. *Ibid*—p. 58.
6. Emil, F. Kronquist—*Art Metal Work* (1942) p. 24, fig. 5.
7. Mackay—*F. E. M.* p. 501.
8. Mackay—Arts and Crafts in the time of Mohenjodaro. *Indian Arts and Letters* Vol. XIII, No. 2 (1939) p. 85.

the Indus jewellery did not consist of one simple piece, the goldsmith used to make holes with drills for attaching it to other pieces but he also knew how to solder. The points of contact of the sheet of these pieces used to be trimmed off with a saw[1] and molten metal dropped over the joint. This cementing material used to consist of a mixture of gold with either silver or copper. Such a mixture often required a lesser temperature for being melted than gold.[2]

The caps and clips of the turquoise bead found at Mohenjodaro,[3] show that he was mixing gold with silver. These pieces do not look like the electrum pieces found in Egypt which have a whiter corpse than these. Dr. Lucas is of opinion that the earliest Egyptian silver and by inference also that of Mesopotamia was a natural alloy of gold[4]. Though gold mixed with silver is found in the Kolar gold fields in Mysore, it would have been difficult to obtain it from such a distance when the goldsmith knew how to mix gold with copper as is seen from the joints he has made to fit the loop inside the gold cap found by Marshall. He would have also known how to mix copper with silver[5] and silver with gold.

The goldsmith of the Indus Valley Civilisation was not only covering copper with thin pieces of gold but was also gilding copper with gold.[6] Perhaps he did this work by heating the copper piece and puring liquid gold over it. The craftsman of Indus Civilization appears also to have been conscious of the effect produced by enamel but perhaps did not know how to do real enamel except by filling in depressions in ornament pieces with stones, faience shell or colour[7]. He has however, left pieces of inlay which compare favourably with enamelled pieces found in Egypt and Ur, for example the heart-shaped pendant found at Harappa[8] which is inlaid with faience and also the pendant in the form of a lotus found here[9] which is alternately inlaid with pieces of lapis lazuli and red

1. Marshall—*M. I C* p. 529.
2. Vernier Emile—*La Bijouterie et la Joaillerie Egyptiennes* p. 68.
3. Marshall—*M. I. C.* II, p. 522.
4. Lucas, Dr.—*Journal of Egyptian Arch.* Nov. 1928, p. 313–19.
5. Mackay—*Further Excavations* p. 599.
6. *Ibid*—p. 501; Majumdar-Arch. Surv. of India *Memoirs 48* p. 56.
7. Mackay—*F. E. M.* p. 586 etc.
8. Vats—*Op. Cit.* pl. CXXXVII–8.
9. *Ibid*—pl. CXXXIX–7.

stone. Then there is a hair pin found at Mehi studded with a lapis lazuli as mentioned before. The pieces of inlay described in the preceeding chapter also lead us to presume that he knew how to inlay pieces of his jewellery.

The goldsmith of the Indus Valley, however, did not know how to make drop ends as can be seen from the manner in which he has constructed the pendants of the necklaces[1]. He has used gold wire, but he has introduced small caps of gold below the bead and passed the wire through the holes doubling it up to hold the bead. These caps appear to have been made out of the gold tube drawn out for the purpose, which were hammered out and fitted to the beads. He also does not seem to have adopted the method of making buckle joints.

Three needles of gold found at Mohenjodaro [pl. XXII. fig. (k), (l), & (m)] testify to the high craftsmanship of the goldsmiths of the Indus Valley[2] and so does the gold hairpin found at Daberkot[3]. Gold and silver were plentiful in the Indus Civilisation as can be determined from the numerous pieces of jewellery found here and the goldsmith conversant with the various methods of making the jewellery perhaps could thus never remain unemployed.

The Silver-Smith—Mackay suggests that in the Indus Civilization silver was more common than gold[4] and Marshall hints that unlike Egypt silver was considered less precious than gold, as relatively large and heavy vessels of this material have been found; though the number of Jewellery found[5] at different sites is comparatively small. The reason for this apathy towards silver cannot be understood. A bead of gold found inside a silver one[6], however, suggests that silver may have been as precious as gold.

The silver-smith of the Indus Civilization appears to have been quite clever at his work. One of the silver pieces found at Nal-5 which is evidently a part of fillet has small paralled flutings *en repousse*. The silver bangle found at Moghul Ghundai with adjustable ends, a perforated disc of silver from Dabarkot, bangles,

1. Marshall—*M. I.* C. p. 579.
2. Marshall—M. I. C. II, p. 521, pl. CII–b, 3, 4, 5.
3. Sir Aurel Stein—Arch. Surv. of India *memoirs 37* p. 60, D. n. d. 2.
4. Mackay—*F. E. M*. p. 50.
5. Marshall—*M. I. C.* Vol. , I, p. 30: II, p. 523.
6. *Ibid*—Vol. II, *p.* 543.

and cones found at Harappa and semi-crosses unearthed at Mohenjodaro described in the foregoing pages all testify to his high workmanship.

The silversmith's knowledge of working his metal was perhaps quite complete and thorough. It appears that he used to melt silver and run it through moulds for making bars which were eventually beaten into sheets. The jar of silver found in the first hoard at Mohenjodaro[1] which Piggott considers as having no subtlety of form[2] is a beautiful piece of work and was perhaps turned out in an unburnt clay mould, which cannot be considered a small achievement in those early days. He also used to make vessels from flat sheets of silver, for example, the silver vase illustrated by Marshall [his plate CXL-2.]

We are not quite sure if he got silver in ingots or extracted it from silver lead mixture. Marshall is of opinion that he used to extract silver from lead[3] but two fragments of silver found by Mackay[4] weighing 107.663 grams have an appearance of melted silver which were ready to be flattend on an anvil to make jewellery. There can be no doubt that he was mixing copper with silver to harden it as the analysis of silver clearly shows. Dr. Hamid who analysed the silver has given his result as follows 94.52% silver, .42% lead, 3.68% copper, and .55% silver oxide. Dr. Hamid has also found a piece of lead which has no silver[5]. Silver was most probably being obtained from Afganistan and Persia with which the people of the IndusCivilization appear to have had contact, though lead containing silver is found in Cuddapah and Karnool districts of Madras; in Kolar gold fields, and also in Ajmet[6]. It was easier to get silver from Farinjal in the Ghotband valley of Afganistan where old workings of silver have been noticed or from the mines near Herat in Persia.

The Copper-Smith—The coppersmith of the Indus Civilization was not only manufacturing axes and other tools[7] but also ornaments

1. Marshall--M. *I. C.* p 519.
2. Piggott—*Pre-historic India* p. 200.
3. Marshall—M. I. C. Vol. II, p 524.
4. Mackay —*Further Excavations* p 453, pl. CXXXII–32.
5. Marshall—M. I. C. Vol II, P. 524; Mackay–F. *E. M.* p. 599.
6. Marshall—*Ibid.*-Vol. II, p, 675.
7. Piggott—*Pre-historic India* p. 199, fig. 24.

of copper and bronze which appear to have been quite popular from the earliest to the latest phase. Along with gold and silver ornaments have been found copper pieces of exquisite designs. If there are gold bead caps there are also copper caps[1]; if there are bangles of gold there are bangles of copper or bronze[2]; if beads and terminals of gold for necklaces have been found, terminals and beads of copper have also been discovered.[3] If gold studs have been unearthed copper ear drops are not missing.[4]

The copper-smith's knowledge of manufacturing articles was quite up-to-date. Analysis[5] of the metal he used leads us to understand that his copper contained 96·7% of copper·88% of antimony ·15% of arsenic, 1·27% of nickel, ·98% of sulphur, ·02% of lead and ·03% of iron. His bronze had 95·37% of copper, 11·09 of tin, ·07% of arsenic, 18% of iron, ·19% of nickel[6] and 11% of sulphur with traces of antimony. The introduction of tin to produce bronze is an original feature of the Indus Civilisation.[7] The mixture of copper with arsenic does not appear to be accidental as suggested by Piggott as the coppersmiths of Anau were also following a similar process[8] to produce bronze. Copper in its original form always becomes discoloured after a few days use, and perhaps tin was mixed not only to give the metal the dsired hardness but also to keep the shine for a long period. Among the other impurities it is the largest in quantity.

The techniques employed by the coppersmiths of the Indus Valley included casting, forging, chasing, cutting and finishing. Casting both by *cire perdue* method and in ordinary unburnt clay moulds seems to have been practised here. The bronze figurines of Mohen-

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2. Mackay—*Further Excavation*, p. 529.
3. Vats—*Excavations at Harappa* p. 448; Mackay–Further Excavations p. 523.
4. Marshall—*M. I. C.* Vol. II, p. 507.
5. Mackay—*Chanhndaro Excavations* pl. LXXVIII–2, Marshall–*M. I. C.* p. 505, pl. CXLIII–11.
6. Marshall—*M. I. C.* p. 484.
7. Nickel as metal was known to Indians at least from the 151 B. C. as is proved from the coins of nickel of, Euthydemos II and Demetrius
8. Gordon, D. H.—The Early use of Metals in India and Pakistan–*Jour. Royal, Anthrop. Inst.* LXXX (1952) p. 56. (7) Piggott–*Pre-historic India* p. 196.
9. Childe—*New Light on the Most Ancient East* p. 177.

jodaro[1] and the bronze foot of Mohenjodaro[2], the bronze animal shaped amulets,[3] the bronze hair pins[4] have all been cast by *cire perdue* method. The large beads, spacers and ear-drops[5] used to be made in small piece moulds. Perhaps rough melts and not the ores of copper were transferred to the workers to be melted in open furnace like the one found in the South West wing of Block-I, House-VI, room-52 at Mohenjodaro[6] or in furnaces found at Harappa[7]. They often used copper sheets also to make ornaments like bangles[8] ear-drops[9], terminals[10], buttons[11] besides pans, dishes[12] etc. Out of rods and wires also they made bangles[13] and finger rings.[14]

We also come across ornamentation on copper or bronze, for example the copper piece found at Mohenjodaro with grooves to take inlay[15], or copper pieces decorated with designs. The finds of copper ornaments along with those of gold[16] irresistably suggest that the shining copper and bronze ornaments were not looked at askance by the fastidious *prima donnas* of the Indus Valley and may have been used by the middle class, if there was one on the upper parts of the body and by the rich on the lower. Even now the rich wear diamond necklaces in India and gold girdles but their anklets are of silver, while the middle class wears necklaces of gold but girdles and anklets of silver. The poor content themselves by wearing siver necklaces, silver bangles, and silver girdles.

1. Mackay—*Further Excavations* pl. LXXIII–9, 10, 11; Marshall *M. I. C.* pl. XCIV–6, 7.
2. Mackay—*Further Excavations* pl. LXXIII–50.
3. *Ibid*—pl. LXXIX. 5, 6, 19.
4. *Ibid*—pl. C–10; Marshall–*M. I. C.* pl. CXXV–34.
5. Marshall—*M. I. C.* pl. XLIII–16 (beads), 15 (spacers), 11 (drops).
6. Mackay—*Further Excavations* p. 451.
7. Vats—*Excavations at Harappa* p. 472.
8. Mackay—*Chanhudaro Excavation* p. 191, pl. LXXIII–30.
9. *Ibid*—pl. LXXVIII–2.
10. Marshall—*M. I. C.* pl. CXLIII, 14–18.
11. Marshall—*Further Excavations* p. 542.
12. *Ibid*—p. 448–49.
13. *Ibid*—p. 534.
14. *Ibid*—p. 530, Mackay—*Chanhudaro Excavations* pl. LXXIII–90–12, 20, 21.
15. Marshall—*M. I. C.* p. 507.
16. *Ibid*—p. 521,

Faience Workers—From the number of ornaments like cones, ear-studs, bangles, necklace beads, spacers, terminals, rings, buttons, amulets, and pendants made of faience found in the Indus Civilization, one is forced to believe that there was a distinct class of workers engaged exclusively in the manufacture of articles of this particular material.

In all probability the faience worker was manufacturing his pieces out of a paste of sand quartz mixed with lime[1] and a spot of soda. This paste was then pressed into a mould to which some fat was applied previously. The moulded pieces were then placed to dry on a clean cot on cloth as is evident from the pieces found at Mohenjodaro and Harappa[2]. After the pieces were sufficiently dry they appear to have been placed in a bath of glaze and allowed to soak the glaze. The female monkey of Mohenjodaro with her offspring has the original batch surface except the head which is glazed[3]. For making glaze they apppear to have mixed sand soda. borax and lime. With this glaze the faience workers in all probability mixed copper, iron and lead compounds to produce the desired colour. The finished pieces were then placed in the pear-shaped furnaces[4] and the heat covered the pieces with a smooth hard coating.

The vitreous paste was developed later perhaps by adding glaze to the faience paste before moulding the articles. Only thus could the firing vitrify the paste. The articles found at different places clearly show that this method of manufacture was well known to the craftsmen of the Indus Valley. We are not quite sure if the glass bangles and beads found by Sir Aurel Stein[5] on different sites were manufactured by the craftsmen of the Indus Civilization. If they were, then it is the faience workers who must have produced them for the method of manufacturing glass with sand, lime, sodaash and borax is not very much different from that of making vitreous paste

1. Lucas, A.—*Ancient Egyption Materials* p. 231.
2. Mackay—*F. E. M.* p. 583; pl. CXI–56, 66, Marshall–*M.I.C.* p. 574–75 pl. CLV–2; 3, Vats–*E. H.* p. 443, pl CXXXVIII–83.
3. Mackay—The Arts and Crafts in the time of Mohenjodaro–*Indian Arts and Letters* Vol. XIII, No. 2 (1939) p. 88, pl. IV–d.
4. Vats—*Excavations at Harappa* p. 472.
5. Sir Aurel Stein—*Arch. Surv. of India Memoirs 37* p. 40, 62 63 etc., *Memoirs 43* p. 23, 94, 62.

articles. Apart from the faience beads decorated and undecorated, the faience buttons, cones, pendants etc., the next most common and popular article which must have kept the hands of the faience workers full, would have been the bangles, for, their form and decoration would have changed with the change of fashion every now and then. The most beautiful of the faience bangles is perhaps the heart-shaped keeled piece found at Harappa[1] and the most minute is the one in connection with the inlaying of the heart-shaped ornament found at the same site[2]. It gives the impression that small pieces of faience arranged vertically are set piece by piece in the ornament. Perhaps heated faience material was poured in the depression of the ornament and then the design was cut with a knife. Originally the faience here would have been of blue colour but now it looks white which is perhaps the result of the cleaning the piece with some acid.

The other beautiful pieces of ornaments include leaf-shaped, lotus shaped and heart-shaped pendants[3], cones coated with white glaze, faience rings, ear tops in the shape of flowers, animal shaped amulets etc. as detailed in the chapters preceeding. All this work must have necessitated the employment of a large number of workers. Perhaps the faience workers of the Indus Valley had more work than any of the craftsmen. No one can say, however, where faience was first invented. The earliest beads of faience so far known are from Egypt though they occur practically on all contemporaneous ancient sites.

Steatite Workers—Equally important was perhaps the steatite craftsman of the Indus Civilization whose special field of work lay in turning out seal amulets, thousands of which have been found all over the Indus Valley and Baluchistan[4]. But he did not confine himself to the production of seal amulets only. A number of beads, terminals of necklace, bangle fragments, buttons, rings etc. have also been found. They speak of his exquisite workmanship.

It appears from the finds that the steatite worker knew the method of hardening steatite. After fashioning the piece and carving on them if necessary he would have exposed them to the sun for getting

1. Vats—*Excavations at Harappa* pl. CXXXVIII–2, 3.
2. *Ibid*. CXXX VII 8.
3. *Ibid*—pl. CXXXIX–4, 7. 5.
4. Wheeler—*The Indus Civilization* p. 76–77.

hardened and then put them in the glaze. He must have fired these pieces in specially constructed ovens. The hardness of the stone[1] which is ordinarily 1·0 to 1·2 was thus raised to 3·2. Egyptian steatite has, however, a still higher hardness ranging between 5·5 to 7. This difference in hardness is probahly due to the quality of the stone employed and also due to the amount of heat applied by the Egyptians. The glaze used may also have been responsible for the lower hardness achieved in the Indus Civilization. The pieces like beads and amulets etc. after being glazed would have been rebored to remove all glaze that might have got into the holes. This glazing would perhaps have required very skilled work as a thick coating of glaze generally obliterates the carvings. The tiny steatite beads found at Chanhudaro by Mackay[2] and recently at Lothal are real marvels of his creation; ·014 of an inch in diameter they all are beautifully perforated. Disc-shaped beads of steatite are a speciality of the Indus Valley Civilizations. It is possible that some of the pieces may have been moulded out of powdered steatite and finished like those of faience. Similar to the faience, copper and lead compounds seem to have been used with glaze for colouring the pieces. Perhaps for cutting the pieces of steatite the steatite workers used plate saw which is employed in cutting bead stones in Cambay[3] even now; and copper or bronze drills were used for cutting designs on the beads[4] and other pieces like the ones fonnd at Harappa and at Mohenjodaro[5]. He may also have used short pointed chisels for dressing the pieces[6].

We begin to find discoid beads from Amri Culture sites of Pandi Wahi, Alimurad and Ghazi Shah. At Nal also we come across discoid beads of steatite. A beautiful piece of this material which was perhaps used as an earring has also been found here as mentioned before. It shows a bird treading a snake. Steatite ornaments from Harappa include among others the pear-shaped ear-studs of burnt

1. The hardness of the stones is always compared with that of diamond which is given an arbitarary value of '10'. Ruby has thus the hardness of '9' and the emerald about '3.5'.
2. Mackay—*Illustrated London News* Nov. 14, 1936, p. 864.
3. Arkell—Cambay and the Bead Industry. *Antiquity* Vol. X—p. 297.
4. Mackay—*F. E. M.* p. 506.
5. *Ibid*—pl. CXXXI–6.
6. *Ibid*—pl. CXIX–13.

and undurnt steatite, temple ornaments, finger rings, animal amulets, bangles, carved beads with trefoil design on them and tooth-shaped beads etc. as detailed in the foregoing pages.

Similar pieces or ornaments of steatite were found at Mohenjodaro also. Some of the important pieces include a steatite ring with trefoil design on it, which perhaps belonged to the high priest of Mohenjodaro, a breast plate of steatite with an unicorn and cult object carved on it, beads with trefoil design, spacers, terminals and amulets in the shape of animals and a human figure etc. as described before.

If the trefoil symbol was connected with some religous belief we can presume that the steatite workers responsible for manufacturing seal amulets as well as beads, rings and breast plates were in some way connected with the religious ceremonies of the Indus Civilization.

The Shell Worker—Equally clever was perhaps the shell worker of the Indus Civilization though Mackay feels that he found difficulty in working his material[1]. Shell appears to have been employed mostly in making bangles and inlay pieces but other pieces of shell like beads, amulets etc. have also been found. At present most of the shell comes from the gulf of Minnar between India and Ceylon, and it is just possible that the Indus Valley people were also exploiting this source. It appears that the Mohenjodaro shell workers followed the method of making bangles which we see in India today[2]. Collumella was extracted by sawing of tip of *śankha* and then breaking down the septa connected with the walls of the shell with a stone hammer. The apex then appears to have been smashed and collumella freed. A hollow tubular piece of shell resulting thus would have been sawn into a bangle like the one we have got from Harappa[3].

The composed shell bangles[4] which would have preceded the whole round pieces were perhaps made by chipping oft the lower portions of the shell after extracting the collumella. Similar

1. Mackay—*F. E. M.* p. 582.
2. James Hornell—Shell working-*Memoirs of the Asiatic Society Bengal* Vol. III, 1910–14.
3. Vats—*Excavations at Harappa* p. 449–H 448.
4. Mackay—*F. E. M.* pl. CXL–47.

pieces must have been employed in making inaly pieces of different shapes and designs. After marking on shell pieces the cutters perhaps used drills to frill them out. Some of the inlay pieces used are slightly bevelled for purposes of keying.

The beads of shell are mostly discoid lenticular in section[1] which suggests that they were cut out of small pieces of shell. Some of the shell beads have decoration of incised circles like those of Dumb Buthi.[2] Perhaps a drill was used to carve. There are however, round and cylindrical beads[3] or shell also which must have required considerable labour to manufacture. After cutting them out from thick shell pieces they must have been chipped off and then slowly rounded off by a stone piece. Such pieces occur more in the higher than the lower levels[4].

Manufacturing such beads would have been a simpler affair than carving out amulets of shell which have been found here.[5] Carving out and modelling animals of shell is a difficult work and the craftsmen must have been really clever to turn out such beautiful pieces as crocodiles, bulls and other animals.

Apart from these, shell cones[6] were also manufactured here. These pieces may have been cut out of the top of the shell and then smoothened out by slow flaking. The holes appear to have been made with the help of a drill.

A cone inlaid with a circular piece of shell found at Harappa[7] is a clear proof that the shell inlay work was being done in the Indus Civilization. Perhaps the craftsmen of Mohenjodaro were well conversant with the method of portraying scene in shell inlay as pointed out by Mackay[8]. A number of shell inlay pieces have

1. Vats—*Excavations at Harappa* pl. CXXXVII-25.
2. Majumdar—Arch. Surv. of India *Memoirs 48* p. 120.
3. Mackay—*F. E. M.* pl. CXXXVI-10; CXXXVI-43; (Mother of pearl); Marshall—*M. I. C.* pl. CXLV-15 etc.
4. Mackay—*F. E. M.* p. 497.
5. Vats—*Excavation at Harappa* pl. LXXIX-68; Marshall-*M. I. C.* pl. XCVI-19 etc ; Mackay—*F. E. M.* pl. LXXI-29; LXXIV-11, 12; LXXIX-28.
6. Vats—*Op. Cit.* pl. CXXXVIII-35, 36; Mackay-*F. E. M.* p. 529, pl. CV-42.
7. Vats—*Op. Cit.* pl. CXXV-51.
8. Mackay—*F. E. M.* p. 585.

been found at Mohenjodaro which substantiates this statement. Inlay pieces used to be set with gypsum traces of which have been found sticking to the pieces[1] as mentioned in the preceeding chapter. Perhaps these inlay pieces in various shapes[2] used to be cut out with the help of drills but in one piece filing marks are also visible[3] which suggests that the people of Mohenjodaro used some kind of files though no such instrument has so far bean unearthed. These pieces used to be set in depressions previously carved out in the main body. Thus it can safely be presumed that the shell workers of the Indus Valley were not very inferior craftsmen as compared to their Sumerian counterparts though no inlaid piece of the variety found at Ur[4] has been discovered here. It is of interest to mention that in the ancient world both the sea shells and the shells from fresh water were considered as potent charms.[5] The later connection of Conch shell with *Varuna* the lord of water and *Viṣṇu* in the *Purāṇās* may have been based on the belief of the ancient man in its potency as a magical weapon.

Ivory Worker—As compared to shell, the pieces of ivory ornaments are few and far between. It may have been due to the fact that elephant was regarded as a sacred animal[6] because two full tusks of elephant have been found at Mohenjodaro[7] proving that ample supply of ivory was available. It appears that the workers cut ivory along the veins and worked towards the centre. It is not understood why they experienced difficulty when they could easily manage other harder and more brittle material like shell. Carved pieces of ivory have been found at Nal described as those of bone,[8] together with Ivory *chauks* at Harappa,[9] ivory hair pins at Mohenjodaro[10] and tubular and disc beads of ivory at several of these

1. Marshall—*M. I C* p. 566.
2. *Ibid*—pl. CLV-26, 42, 44-67; CLVI-1, 4-12 etc.
3. *Ibid*—p. 565.
4. Woolley—*Excavation at Ur.* pl. 91.
5. Mackenzie, D.—*Ancient Man in Britain* p. 37-42.
6. Marshall—*M. I. C.* Vol. II, p. 563.
7. Mackay—*Further Excavations* p 579.
8. Hargeaves—Arch. Surv. of India *Memoirs 35* p. 42, No. 7.
9. Vats—*Excavations at Harappa* pl. CXXXVIII-24, 25 etc.
10. Marshall—*M. I. C.* p. 531, 532, pl. LVIII-1; Mackay-*Further Excavation*, pl. XCI-27 etc.

sites[1]. Among some of the remarkable carved pieces of ivory is the top of a cosmatic jar ornamented with the floral pattern[2] and an ivory plaque[3] on which is visible an indistinct figure standing to the left with the hand on the hip in a posture similar to the one seen on some of the seals of Susa[4]. Inlay pieces include among others a long piece decorated with the circles and dots [Plate XXVIII-A, fig. (r)].

The knife marks which appear on the reverse side of some of the pieces[5] were made under the belief that such marks protect the piece from cracking. Similar marks are seen on some of the later ivory pieces also like those from Begram[6]. Even now ivory workers in India insist on making these marks. It should not, therefore, be supposed that the workers did not know now to handle ivory. It may be mentioned that ivory articles and tusks ought to have been one of the important items of export.

The Pottery Worker—The Indus Valley pottery worker was not only manufacturing terracotta figurines and decorated pots but he was also manufacturing terracotta jewellery perhaps for the poor people who contented themselves with putting on such pieces[7]. The most important of these were the clay bangles which were, in all prababilty, worn in of place *chūrīs* or bangles of glass of modern day. Next in importance were the beads; spacers and terminals of pottery which were used probably for making girdles and may have been used sometimes for necklaces by the poor. The pottery ornaments, especially bangle appear to have been made out of specially prepared clay containing 54·28 of silice, 19·08 aluminia, 8·73 of ferrous oxide, ·13 of manganese oxide, 9·63 of lime, 4·39 of mangnesia and 3·43 of other alkalis[8]. These pieces used to be dried in the sun after being moulded, probably in wooden moulds. When suffi-

1. Vats—*Excavations at Harappa* pl. CXXVIII–31; Mackay–*Further Excavations* pl. CXXXIX–20.
2. *Ibid*—pl. CXLII–48, 49.
3. Marshall—*M. I. C.* pl. CXXXII–10.
4. *Memoir delegation en Perse t.* VIII–p. 11, t. XVI–pl. XXIII.
5. Mackay—*F. E. M.* p. 579.
6. Hackin—*Nauvelle recherches archeologiques a Begram* fig. 75, 76, 77, 78.
7. Mackay—*F. E. M.* p, 497.
8. Marshall—*M. I. C.* p. 530.

ciently dry they used to be coloured and then placed in special ovens and fired.

One of the inventions of the pottery worker of the Indus Valley appears to be the application to thick glaze which has resulted in making some of his pieces look like those of vitreous paste[1]. Pieces of pottery ornaments, have been found from the earliest levels of Indus Civilisation. Some of the pieces of bangles[2] appear to have been burnished with a purple slip to which glaze was applied, but before firing some of the glaze was removed by means of comb to produce wavy or slanting linear decorations. It appears that the Indus Valley potters tried to produce copies of glass articles[3] with 88·12 of silica, 3·2 of aluminia, 1·82 of ferrous oxide, 1·26 of calcuim oxide, 5·04 of alkali and ·46 of cupric acid but perhaps did not succeed for, we do not get more than two ornrament pieces of this material.

Of the pottery ornaments there are cones with chocolate markings[4], beads[5], spacers terminals[6], bangles[7], finger-rings[8], *bullaes*[9], animal amulets[10] etc.

The craft of the potter appears to have reached quite a high stage of perfection. The potter knew how to make batch for his articles, mould them, colour them and then fire them. We are not sure if he knew very many colours for he has mainly. red, brown, yellow and black. The soot must have given him the black colour and the red pigment from the islands of Persian Gulf would have provided the

1. Mackay—*F. E. M* p. 496, pl. CXXXVI–60.
2. *Ibid*—pl. CXXXVI–94 etc.; Vats—*Excavations at Harappa*-pl. CXXXVIII 1; Marshall—*M. I C.* pl CLII–1
3. Mackay—*F E M.* p, 189.
4. Majumdar—Arch. Surv. of India *Memoirs 48* p. 41, pl. XVII–48; p, 15, J. K. 596 etc.
5. *Ibid*—p. 32, Am. 467 etc.; Marshall—*M. I. C.* 516; Mackay - *Chanhudaro Excavations* p. 206–207.
6. Marshall—*M. I. C.* p. 577–18 etc.
7. Majumdar—*Memoirs 48* p. 33; Vats—*Excavations at Harappa* pl. CXXX VIII–1, 4 etc.; Marshall—*M. I. C.* pl. CLII–11, 12 etc.; Mackay—*F. E. M.* p. 535–536; Mackay–*Chanhudaro Excavations* p. 191–92.
8. Wheeler—Harappa–*Ancient India No. 3* pl. LIII.
9. Mackay—*F. E. M.* pl. LXXI–14.
10. Marshall—*M.* I. *C.* pl. XCVI–9 etc.

bright red he has used. The beads of pottery have smooth ends and when threaded fit one another quite closely which in itself shows how careful the potter was. Had it not been for his terracotta figurines it wonld have been difficult to know how the men and women of the Indus Civilization dressed and decorated themselves for the ancient script of this civilization still remains to be read to the satisfaction of scholars[1].

Bead Makers—Bead making in India has always been considered a separate craft.[2] Even today the craftmen who make beads do nothing else. (In *Yajurveda* we get a reference to *Maṇikāra* in company with the *Hiraṇyakāra*[3] and most probably he was the bead maker of those days. He is also mentioned in the *Taittirīya Brahmana*[4] To-day the pearl driller has further been segregated from the *maṇikāra.* The *manikāra* in Northern India is now known as *Hakkāka* a word which is perhaps of Arabic origin and the pearl driller as *motisāja.*) A complete shop of a bead maker has been found at Chanhudaro which confirms us in the belief that bead making was a separate vocation[5]. A number of incomplete beads found in the Indus Civilization clearly show that beads were not being imported ready made. Stone beads used to be made by splitting the crystal and shell beads by breaking the nodule along the longer end. The process produced strips or rods rectangular or square in shape. At each end of the slip of the unfinished bead the surface of the crystal or the nodule from which it was struck with a chisel can be seen. Then perhaps the strips used to be cut with a saw longitudinally by means of a copper plate saw the like of which was being used in the Indus Valley[6]. The minute fleking used to be done thereafter. These roughs of beads then used to be rubbed on a piece of sand stone which had grooves. Some of these rubber stones are shaped like animals. Probably they were so made because people thought that the egg-laying animals could help to smoothen the eggs. The grooves of these rubber stones are such that they would

1. Wheeler—*The Indus Civilization* p. 87.
2. Arkell—Cambay and the Bead making Industry. *Antiquity* Vol. X, p. 292–305.
3. *Vājasaneyi Saṁhitā* XXX–7, 1.
4. *Taittirīya Brāhmaṇa* III–4, 3, 1.
5. Mackay—Bead making in Ancient Sind–*Journal of American Oriental Society* Vol. 57 (1937) p. 1; Mackly—*Chanhudaro Excavations* p. 209.
6. Mackay—*Chanhudaro Excavations* pl. II–6; Arkell —*op. cit* p. 297.

have allowed only a portion of the bead to come into contact with the stone thus helping to preserve the shape. The rubbing must have been done along the grains of the stone with water as lubricant which helps to smoothen the beads and also absorb the heat thus generated. The beads of faience and pottery in all probability used to be moulded in wooden moulds. There was therefore, no question of flaking or rubbing them to give them the required shape. The steatite beads most probably used to be cut in the required shape, carved when necessary with a drill, bored, then glazed and fired.

The ivory beads were probably carved out by hand while the beads of shell were made most probably by splitting like the stone beads.

The process of boring employed in the Indus Civilizations appears to have been a complicated one for, an examination of the beads leads us to the conclusion that they were being bored from both sides. Often the holes do not meet in the centre for example in the beads of the necklace (plate XXII) found at Mohenjodaro by Marshall. These holes, however, appear polished. The holes appear to have been bored with round drills of stone found at Chanhudaro[1]. These drills have small cavity for taking some lubricant which may have been some thin fat. The abrasive today consists of powdered sand mixed with ghee (clarified butter). The same type of abrasive may have been used for boring at that time also. Unless the abrasive is mixed with sufficient lubricating material the smoothness of the surface is not achieved. Perhaps the beads enclosed in wooden holders used to be fixed to a wooden lathe to avoid displacement[2]. These lathes probably used to be worked by wooden bows as they are worked even today The facetting of bead which we come across here[3] is an unique achievement of the Indus bead maker. Facetting of stone is a craft which we seldom come across in any other contemporary civilization. They may have been rubbed on the stones described before to produce the facets on the beads. The facetting of beads must have originally begun from the gold beads[4] which have diamond shaped facets on them. Beads of metal include those of gold, silver and copper. Of stone there are

1. Mackay—*Chanhudaro Excavations* p. 212, pl. LXXXIX; XCII–2, 3, 10.
2. Mackay—*Indian Arts and letters* Vol. XIII, No. 2 (1939) p. 84.
3. Majumdar—*Arch. Surv. Ind. Memoirs 48* p. 13, Pl. XVII–4.
4. Mackay—*F. E. M.* pl. LXXXII–5.

beads of blue jade, lapis lazuli, onyx, jasper agate, serpentine, turquoise quartz, chalcedony, lime stone, steatite, etc[1]. Of paste beads those of faience and of vitreous paste are common. The most important are, however, the etched carnelian beads and their imitations. The so called etched carnelian beads can be divided under three heads according to the colour used for decoration, (a) white decoratton on natural red ground, (b) black design on whitened surface, and (c) black design on natural red ground[2]. The most common is the first variety. The favourite patterns include an eye design, figure of eight, and an elaborate design of nine compartments each containing a cricle and a dot. They used to be decorated so as to lie as flat as possible so that the full design might be seen. The beads used to be decorated in the first case probably marking the design on the bead with the help of a drill after shaping it. The alkali in thick liquid paste thereafter stuck on to the bead. The bead was then heated. The paint thus acquired a gloss which was difficult to obliterate. It then used to be polished on a wooden lathe with the help of a wooden chisel. The lathe used to be turned by a wooden bow. The alkali used was most probably the juice of *kathā* plant (catechu or careebney traenium) which is common in that area.

For producing the second type of beads, the bead maker probably used to cover the whole bead with this alkali and then draw the design on it with the copper compound. The third type used to be produced by applying the copper compound directly on the etched design. The beads of steatite in imitation of the carnelian beads perhaps used to be coloured with a red pigment leaving the natural white portions intact. These pieces were then heated to fix the colour. The faience specimens were also similarly manufactured.

The carved beads of steatite were in all probability designed on a wooden lathe with the help of copper drills. These are of two types, one with trefoil design on it and the other with bands. The marks of the drill are still descernible in the centre of each lobe of the trefoil design which clearly proves that the drill was used to carve out these designs. The semented beads of faience appear to be the discovery of an accident.

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1. Mackay—*F. E. M.* p. 495–511.
2. Wheeler—*The Indus Civilization* p. 75.

In the process of heating perhaps some beads got joined together which later would have given rise to this new fashion in manufacturing beads. We can thus safely conclude that the bead makers of the Indus Valley knew how to carve, cut, flake, polish, drill and facet the stone for making beads. They also possessed the technique of making imitations of etched carnelian beads which probably used to be exported to other places like Hissar, Ur, Tell Asmar etc[1].

The instruments of the bead makers in all probability consisted of a wooden lathe, a wooden bow, drill of copper[2] and stone hones[3] for sharpening the drills etc. Unfortunately the wooden lathes and their bows have perished due to climatic conditions as none have been found so far.

Possibly the bead makers had divided among themselves the work of manufacturing different varieties of beads so as to allow one set to make steatite beads, another to produce stone beads, a third to create etched carnelian beads and a fourth to fashion faience beads. Even today such a sub-division of work exists. The enamel worker does not make gold ornaments, the ruby bead driller does not bore pearls, the shell bead maker does not work on ivory beads. The number of bead makers in each city of the Indus Civilizations must have been pretty large to turn out so many pieces of exquisite beauty.

The Threaders—The craft of threading a piece of ornament is a subsidiary work; but all the same it requires a distinct type of skill. In India the threader is a craftsman who carries his trade altogether separately. If there was a definite fashion in the stringing of necklaces in Ur as suggested by Woolley[4], there was a 'mode' of stringing beads in the Indus Valley Civilization as is apparent from the beautiful pieces of necklaces found at Harappa Mohenjodaro and recently at Lothal[5] and then fashions changed with the years. His work work consisted, as it does now, in arranging beads in a manner that they may produce a homogeneous effect. Pearls when taken out of the shells today are of several shapes,

1. Mackay—Further Links between ancient Sind and Elsewhere, *Antiquity Vol. V* p. 459-473.
2. Mackay—*F. E. M.* p. 475, pl. CXXI-6; CXXXII-10.
3. Majumdar—*Arch. Surv. of India Memoirs* p. 137, pl. XI-42.
4. Woolley—*The Royal Cemetery at Ur* p. 366.
5. *Hindustan Times*—July 9, 1957, page I, fig. (b).

some are round, some flat, others oval but the threader arranges them in a necklace in a manner that they all look round and it is in this arrangement that his art lies. Similar is the case when beads of different stones with different colours are to be arranged for making a necklace. It is he who arranges the colour combinations. These composite bead pendants of the necklaces referred to in the foregoing pages give us an inkling of the high level of his craftsmanship. Soft green jade beads with discs of gold and steatite threaded to pendant drops of jasper agate provide a striking example of his sense of colour. Beads arranged in this fashion have imparted a distinct shape to the pendants which resemble the modern rolling pins. We also get pendants made of minute globular and cylindrical gold beads to which are attached pendants of sky blue glazed beads of faience[1].

The threading material was in most cases either copper[2] or gold wire[3] but the cotton fibre found sticking to copper beads[4] leads us to presume that the beads were also threaded with cotton thread. The bone needles found at Periano Ghundai[5], Rana Ghundai[6] and Kulli[7] as well as the copper[8] and gold[9] needles from Mohenjodaro were perhaps being used by the threader for his work. No one can dispute the quality of work which he has produced with these simple instruments.

Thus we can conclude that the craftsmen of the Indus Valley were quite clever at their work and knew practically all the methods of manufacturing jewellery known to the civilized world of these early days and were not very much behind the Egyptian craftsmen.

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1. Marshall—*M. I.* C. pl, CXLIX–4.
2. Vats—*Excavations at Harappa* p. 434. (carnelian bead thrended to copper wire).
3. Marshall—*M. I. C.* p. 519 (pendants threaded to gold wire).
4. Mackay—*F. E. M.* p. 594. (D. K. 9275) (cotton thread in three copper beads).
5. Sir Aurel Stein —Arch. Surv. of India *Memoirs 37* p. 40.
6. Ross, E. J.—A Chalcolithic Site in Northern Baluchistan—*Journal of Near Eastern Studies* Chicago -July 1946 Vol. V, p. 299.
7. Stein—*Arch. Surv. Ind. Memoirs 43* p 123.
8. Mackay—*F. E. M*, p. 476; Marshall—*M. I. C.* pl. CXXXII–1.
9. Marshall—*M. I. C.* pl. CLI (b) 3, 4, 5.

The distinct development in the craft of the various levels of the Indus Civilization[1] was probably due to trade contacts which existed between the different towns and cities of different countries of the proto-historic period as we shall see in the next chapter. Unfortunately, however, the Indus Valley script has not yet been read satisfactorily and the excavations carried on so far have not yielded pictographic representation of the life of the people and the methods employed in manufacturing various objects as is the case with Egypt.

1. Childe, G.—*New Light on the Most Ancient East* p. 186.

CHAPTER X

THE POSSIBLE TRADE ROUTES

As has been suggested in the foregoing pages, it appears quite probable that trade links existed between the Indus Civilization and the other parts of the known civilised world of the 3rd millennium B. C.[1]. It was through trade channels that Indian manufactures like seals[2] and knobbed pottery vases reached Mesopotamia during the last part of the third millennium B. C. and conversely cylindrical seals and toilet sets of Sumerian type were copied in the Indus Valley[3]. The presence of etched carnelian beads in Kish, Shah Tepe Tell Asmar, Hissar and elsewhere [pl. XLIV–A, fig. (c)] of the type found in the Indus Valley and in all probability manufactured here[4] is another proof of the trade relations existing between those distant sites and the Indus Valley. We have not only found etched carnelian beads of the Indus Valley type in other places but also notched beads at Shah Tepe, Kish and Hissar like those of Mohenjodaro [pl. XLIV–A, fig. (D)]. There are faience segmented beads at Nineveh at Hissar in Syria[5] and in Crete identical in composition[6] to those of Indus Valley [pl. XLIV–A, fig. (E)]. There are long barrel shaped carnelian beads like those of Indus Civilization at Ur[7] and Kish[8]. Then, there are the corrugated beads of

1. Grousset Rene—*Histoire de L'Extreme Orient* tome I, p. 4; J. Kenndy—J. R. A. S. 1898. p. 259–260 (Asiatic elephant on the black obelik of shat mansar).
2. Woolley—*The Development of Sumerian Art* p. 125
3. Childe, G.—*New Light on the Most Ancient East* p. 177; Marshall—*M. I. C.* Vol. II, p. 345; *ARSI* 1928–29, pl. XXVIII.
4. Mackay—*Bead making in Ancient Sind* J. A. O. S. Vol.-57, No. 1, p. 3.
5. Mallowan, M. E. L.—*Excavations at Brak–Iraq* Vol. IX, p. 254, 255
6. Stone, J. E. S.—Antiquity XXII (1949) p. 201–205.
7. Woolley—*The Royal Cemetery* pl. 138, u. 11806 e.
8. Mackay, E.—*'A' Cemetery at Kish* Vol. I, part II, pl. XLIII–8.

pottery of Mohenjodaro[1] resembling those of the semi precious stones of Egypt[2]. There is the lotus pendant from Harappa resembling the pendant at Ur. [pl. XLIV-A figs. (a) and (b)]. Again there are fillets [pl. XLIII] decorated with holes at Ur, Kish, Ras Shamra and Sialk [pl. XLIII, fig. (g), (h), (i)] and (k)] similar to the one found at Mohenjodaro fig. (c) [pl. XLIII] and fillets decorated with dots similar to those of Indus Valley fig. (f), at Hissar fig. (j), [pl. XLIII]. Similarly hairpins of western origin[3] have been found in the Indus Valley [pl. XLV]. Then the spacers and the terminals of the long necklace of Mohenjodaro somewhat resemble in pattern to those of Egypt fig. [pl. XLVII. figs. (c) and (d)]. The presence in the Indus Valley of coiled bracelets [pl. XLVII fig. (h)] similar to those of Egypt[4], of Hissar figs. (p) and (q), Shah Tepe[5]; Kish fig. (k), and Susa[6], of Bangles with ends like those of Mohenjodaro[7] found at Susa[8] and Kish[9]; of bangle with cut ends like those of Mohenjodaro[10] found at Ur[11], Ras Shamra[12] and elsewhere pl. XLVI; of the presence of anklets here like those at Knossos[13] etc. all point to the fact that there were contacts with the Indus Valley and the contemporary cities of the west. Perhaps a stream of Indian merchants[14] continually visited these places. Evidence of their visits to the cities of Mesopotamia, (see page 197) Northern and Southern Iran can thus be traced.

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1. Mackay, E.—*F. E. M.* pl. CXXXVI-19.
2. Childe, G.—*op. cit.* pl. XI (bottom).
3. Piggott, S.—Notes on Certain Pins and a Macchead from Harappa *Ancient India* No. 4, p. 26-40.
4. Louvre—*Amenemhet* II No. 173.
5. Arne—*Shah Tepe* p. 297, pl. XCII, fig. 642.
6. Mecquenem—Excavations at Susa *Antiquity* Vol. V (1931) p. 337, fig. 15-7, 3.
7. Marshall—*M. I.* C. pl. CXLIV-11.
8. Mecquenem—Excavations at Susa *Antiquity* Vol. V (1931) p. 337.
9. Mackay—*'A' Cemetery at Kish* Vol. I, part II, pl. XLIII-9.
10. Mackay—*F. E.* M. pl. CXXXV-20.
11. Woolley—*The Royal Cemetery* pl. 141, u. 7912; 7813.
12 Schaeffer—*Stratigraphie Compareeugarit, Ras Shamra* pl. XII, p. 23.
13. Evans—*Palace of Minos II* p. 723, 726, fig. 449, 454,
14. Ghilde, G;—India and the West before Darius—*Antiquity Vol.*-XIII (1939)-5.

We are not, however, sure if they actually visited Crete and Egypt, but it can safely be assumed that they had contacts direct or indirect[1] with these countries. The evidence of the visit of India's Himalyan neighbours to the cities of the Indus Valley are also available; for example thetypical Mongolian face of a terracotta from Mohenjodaro[2] and a skull from one of the burials of the same city which has structural affinity with the Mongolians[3].

How was this trade carried on, what were the routes which the merhants followed are questions which have engaged the attention of the scholars for quite some time now.[4] The palaeo-geographical condition of this part of the world being still in dispute, the question of fixing the various points through which the trade channels could have passed has added to our difficulty.

Basing our presumption on the existing dry beds of rivers like *Luni, Saraswati*, or *Ghaggar, Hakra* or *wahindat* we conclude that northern Rajputana which is an arid desert now may have been a wooded and fertile part of India five thousand years back.[5] Similarly on the basis of the numerous burnt bricks found at Mohenjodaro, Chanhudaro, Harappa, and Baluchistan we conjecture that the cheerless regions of Baluchistan, Sind and Makran had a more cordial climate[6] than today. Similarly, we can not be sure if the *desert de Kavir* and *desert de Lout* in Persia were in their present condition in those early days. This is another question which crops up and which has receded solution, and we find that the most important route through Persia which was followed by the *Vedic* tribes, the Persians of Cyrus, by Darious, by the Scythians, by the Parthians, by the Tokharis, by the Huns, and

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1. Childe, G.—*Newlight on Most Ancient East* p. 238.
2. Mackay—F. E. M. pl. LXXVI—2, 4.
3. Piggott—Pre-historic India p. 239.
4. Krishnan—*Geology of India and Burma* p. 30; Whitehead, R. B.—River Courses of Punjab and the Sind—*The Indian Antiquary*, (Bombay) Vol. LXI (1932). p. 163—9.
5. G. Bhuler—*Indian Studies No. 3* p. 81—82. (Resume of India's sea trade with the west); J. Kennedy Early Commerce of Babylon with India—*J. R. A. S.* 1898. p 241—288.
6. Wheeler—*The Indus Civilization, Cambridge History of India Suppl. Vol.* p. 5; also see *Gazettier of the Province of Sind* 'A' Volume—1907. p. 16—29.

by the Mongols was the Northern route to India[1]. The possibility of arable land being turned into desert in course of time cannot, however, be totally ignored[2]. Even today the desert of Rajputana is encroaching upon the fertile lands of Mathura and Agra[3]. One can, therefore, presume that at least the Persian Baluchistan including Sind and Indian Baluchistan was not an arid desert as it appears today[4].

Means of communication :—What were the means of communication is another question which arises in this context. Was the trade traffic wholly by land or a part by sea and another part by land, are matters to a great extent conjectural. The absence of boats among the finds of the Indus Civilization has further complicated the situation. We have got, however, a seal and pot-sherd graffiti from Mohenjodaro[5] both of which exhibit a boat with sharp upturned bow and sterns almost of the type noticed at Crete, Egypt and Sumer[6]. One shows a mast and a yard and the other a central cabin with a man sitting at the steering oar almost like the later boat of the historical period painted in Ajanta (Griftiths—The Paintings in the Buddhist cave *temples of Ajanta* p. 87). The vessels appear to be made of reed, as the lashings are visible on the pot-sherd. Based on these representations it can be presumed that similar boats were used by tradesmen of the Indus Civilization which like the Arab dhows of today might have ventured forth and reached the mouths of Euphrates and Tigris during the fair weather. Keeping close to the coast like the present day county-boats they would have managed to reach distant lands, replenishing their supply of food and fresh water from coastal towns.

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1. Foucher—*Vieille Route de 1'' Inde, de Bactres a Taxila tome* I Vol. I, p. 3.
2. Evidence of a change of climate in Central Asia-H. R. Hall-*Antiquity* Vol. II. 1928. p. 294.
3. *Hindustan Times. Overseas Edition* April 8, 1954, p. 4.
4. Sir Aurel Stein—*Archaeological Reconnaissances in N. W. India and South Eastern Iran* p. 105.
5. Mackay—*Further Excavations* p. 340, pl. LXIX-4; LXXIX-A.
6. J. Kennedy—Early Commerce of Babylon with India. *J. R. A. S.* 1998 p. 245, (Bass relief on the walls of Queen. Hatshepsut at Deirul Behri); Maspers-*Navigations de Egyptiens Revue Historique* Vol. IX. 1879. G. Childe. New light on the Most Ancient East pl. XXIV-b etc.

Bones of pack animals found at Mohenjodaro and other sites of this civilization suggest that for overland traffic camels, bulls elephants and asses were utilised. A part of the scapula of a camel was found by Marshall at a considerable depth at Mohenjodaro,[1] which suggests that this animal was in actual use in this civilization. A copper or bronze pin bearing the representation of a seated camel found at Khurab by Sir Aurel Stein[2] further supports this argument. The presence of two tusks of elephants among the skeletons at Mohenjodaro[3] and their representation on the seals of this city[4]—the elephant toys[5] and the pieces of carved ivory[6] all suggest that the animal was very much present in the Indus Valley and may have been employed by the people for transport of goods. Similarly the presence of bulls on the seals of the Indus Valley as well as the bulls and buffalos in the form of toys[7] lead us to believe that these animals were also being utilised by traders for carrying their goods as is done today in several parts of India. The use of horse and ass as pack animals in this ancient civilization is rather a ticklish subject for the horse has long been connected with the Aryans. Bones of horses and asses occur at rather high levels at Mohenjodaro while at Rana Ghundai they have been found at a comparatively much earlier level[8]. A terracotta figure of a horse has been found at Periano Ghundai by Sir Aurel Stein[9] and another at Harappa by Vats[10], though he is hesitant in declaring it as representing a horse. All this evidence suggests that some kinds of horses or asses were known to the people of Indus Civilization and may have been used for transport of goods. A little clay model of a pack saddle found at Jhukar probably contemporane-

1. Marshall—*Mohenjodaro & the Indus Civilization* Vol. I, p. 28; II, p. 660.
2. Sir Aurel Stein—*Archaeological Reconnaissance* etc. p. 121, pl. XVIII–Khur. E. I., 258.
3. Mackay—*F. E. M.* p. 579, pl. CXI–72 (Elephant Tusks).
4. Piggott—*Pre-historic India* p. 183, fig. 22.
5. Vats—*Excavations at Harappa* p. 301.
6. Mackay—*Op. Cit.* pl. CXLII–48, 49; CXLII–15 etc.
7. Wheeler—*The Indus Civilization* pl. XX–1, 2.
8. Ross, E. J.—A Chalcolithic site in Northern Baluchistan–*Journal of Near Eastern Studies*, Chicago, July 1946; Vol. V, p. 296.
9. Sir Aurel Stein—Arch. Surv. of India *Memoirs 37* p, 38 pl. VII, p. w. 6.
10. Vats—*Excavations at Harappa* pl. LXXVII–39, p. 305.

ous with that of Mohenjodaro level confirms this suggestion[1]. The bones of goats found at Rana Ghundai[2] and their clay models at Harappa and at Jhukar[3] suggest that they may have also been used for transporting goods over steep mountainous areas as is even now being done in India in the Himalayan regions of *Kedārnātha* and *Badrīnātha*. Terracotta models of two wheeled ox-carts apparently with solid wheels comparable with those in use in Northern India today were found at Harappa.[4] An Ekka-like bronze cart with closed sides and gabled roof is among other finds of Vats from the same site[5]. Two other carts of bronze were found by Mackay at Chanhudaro,[6] one is of the Harappa type and the other is without cover but with solid tyres. Terracotta models of four wheeled carts with fore wheels larger than those at the back were also discovered in the Indus Valley[7]. These appear to be model of camel carts which we often come across in Rajputana. A terracotta cart wheel found at Jhukar[8] has two standing human figures on it, which suggests that some of these carts were driven by men standing on the cart in the manner in which a cart is being driven on the vulture stele of Eannatum king of Lagash[9]. A terracotta cart frame pierced with holes was found from the upper strata of Amri[10] also. Thus we can safely presume that the wheeled means of communication were in use in the Indus Civilization. These animal drawn carts would have developed in course of centuries from the packanimal mode of carrying goods.

Apart from the means of communication it is also essential for inland and foreign trade that there should be provison for *Caravan-serais* where the traders may stop and replenish their supplies of food and water. The small sites like Amilano[11] in Sind or Geh

1. Majumdar—Arch. Surv. of India *Memoirs 48* p. 15, pl XV–19.
2. Ross—*Op. Cit.* p. 216.
3. Vats—*Excavations at Harappa* p. 301; Majumdar—*Ibid* p. 12, pl.–XXI–13.
4. Wheeler—*The Indus Civilization* p 60.
5. Vats—*Op. Cit.* Vol. I, p. 99, pl. CXXV–35.
6. Mackay—*Chanhudaro Excavations* p. 164.
7. Wheeler—*The Indus Civilization* p. 61.
8. Majumdar—Arch. Surv. of India *Memoirs 48* p. 15; JK. 525.
9. Hrozny, B.—*Ancient History of Western Asia, India and Crete* p. 47, fig. 21.
10. Majumdar—*Arch. Surv. of India Memoirs 48* p. 33, pl. XVII–55.
11. *Piggott—Pre-historic India* p. 175.

in Persian Makran may have served as halting places for the caravans of merchants and their retinue. The water at these places is good. Similarly on the Northern route *Nad-i-Ali* and Rhages or Raiy appear to have been the halting places for traders. Palmyra, Heliopolis and Epiphania built by king Solomon later[1] were also halting places.

Sea Route to the West—Unfortunately we have no records either in Mesopotamia or elsewhere of the details of the routes[2] which traders followed in the third mellinium B. C. and the difficulties they encountered on their way to the West. In can, however, be presumed on the basis of the remains of a part at Lothal in Gujrat that the traders taking their boats in fair weather from the Indus at Orangi[3] and following close to the coast line of Baluchistan and Iran used to reach Mesopotamia. This is the route, a part of which Alexander's army followed on its home-ward journey. It is just possible that Sutka-gen-Dor, which is 75 kilometers from the coast of the Persian Gulf, may have been one of the ports in those days for the later Greek writers describe Gedrosia as filled with remains of over a thousant towns. Marcopolo even in the 13th century A. D. relying on the ancient tradition, says about the people of Kej Makaran that, "they live by merchandize and Industry for they are professed traders and carry on much traffic by sea and land on all directions".[4] The small ships of the the Indus Valley merchants passing out of the Indus near Orangi, the last out-post of Harappan culture in Sind where the old bed of Indus is visible, may have followed the costal line and stopped at Gwadur where proto-historic remains have been noticed[5]; and then at Sutkagen or and from there they may have laid anchor at old Hormuz or Minab where a small

1. Radhakumud Mookerji—*A History of Indian Shipping and Maritime Activity from the Earliest times* p. 94.
2. Caldwell in his *Grammar of Dravidian Languages* p 122. suggests that Aryan merchants must have accompanied the servants of Solomon from the mouth of Indus.
3. It appears that Indus has changed its course like Amu Darya and used previously to meet the sea near *orangi*. Prof S. P. Tolstov—twenty years of Exacavation in Khorezm Culture and life II/1957 November Moscow.
4. *Marcopolo*—Vol. II, p. 410. B. Rowland *The Art & Architecture of* India p. 12.
5. Sir Aurel Stein—Arch. Surv. of India *Memoirs 43* p. 71, ff.

bazer exists even today. Marcopolo (1254-1324 A. D.) describes this place thus, "Merchants come here from India with ships loaded with spices and precious stones, pearls, clothes of silk and gold, elephant's tusk and many other wares which they sell to the merchants of Hormuz[1]. This would have been an ideal place for harbouring the ships even in those early days, as the natural port constructed by the fall of Minab river in the sea helps to make the place which is about 30 kilometers from the Island of Hormuz an ideal landing ground.[2] It is from here that the red pigment found at Mohenjodaro was being imported. Alexander's ship cast anchor at the port of Neoptana[3] and this may be the same place where the river Minab meets the sea. Then the traders going to west may have stopped at Jashk which also appears to be an old site. From here the ships may have reached Bander Abbas the old name of which was probably Gombrun,[4] an ancient trading centre. From Bandar Abbas the traders may have gone to Tahiri the site of the old port of Siraf[5]. The ships may have then touched at Tell-i-Pir[6] which is also very near to the coast and may have been a sea port at that time. The evidence of the recession of the sea is noticeable where the Mand river falls into the sea[7]. The ships then passing Lingeh would have reached Bunder Buchire which has yielded pottery of Susa I, and Susa II types[8], a stone vessel with hut and criss cross pattern[10] decorated on it and an ivory hair pin of Indian origin[9]. From there to Eridu, Laursa and Kish would not have been a difficult journey via Bandar Dilam, another proto-historic site

1. *Marcopolo* (yules) Vol I, p 107.
2. Sir Aurel Stein—Arch. Reconnaissance in N. W. India and S. E. Iran p. 182.
3 Arrian—*Indika* (Ne'rindles) XXXIII-2.
4. Stiffe, A. W.—Ancient Trading Centers of the Persian Gulf-Geographical Journal 1900, Aug. p. 211. ff.
5. Sir Aurel Stein—*Arch. Recon* p. 204.
6. *Ibid*—p. 218.
7. *Ibid*—p. 233.
8. Pézard, M.—Mission á Bunder Bouchir, Documents Archeologiques at Epigraphiques. Paris 1914, Mission Archeologique de Perse. Vol. XV p. 1-38.
9. *Ibid*—pl. VIII-2, also see for comparision Mackay—*F. E. M.* pl. CXLII 43a.
10. Pézard—*op. cit.* pl. VIII-22.

(Map I). It is supposed that the mouths of the rivers Tigris and Euphrates were further down[1]. This would have facilitated the passage of these ships to Mesopotamian sites. Hazardous as this journey may have been for the traders as all sea voyages were till the steam ships were invented, it would have been quite profitable for it would have provided opportunities of contacts with the rich sea coast towns, like Bunder Abbas, Bunder Buchire and Eridu etc. The last named, the chief seat of the Sumerians was a port and therefore, would have been reached from the east more easily by the sea than by the land. Moreover, in the tradition of the story of Oannes who came daily for the Persian Gulf to teach the early Sumerians how to irrigate their land and grow their crop etc., as well as in the Sumerian mythology that Ea had a ship which was manned by his sons Marduc[2], the possibility of a sea route to Mesopotamia via Persian coast can be surmised. It is possible that in between the big ports there existed townships like Khamir and Kung[3] now extinct and so far unexplored where the merchant ships stopped to replenish their food and water supply.

Land Routes—If the geographical conditions in general of Iran were not very different from what they are today Dasht-i-lut and Dasht ikavir which cover an area of approximately 62,500 kilometers would have been for the most part inaccessable[4] as they are now. The trade routes thus could pass either to the north or to the south of this cheerless part of Iran. In fact the lay-out of sites as disclosed from the aerial survey of Persia recently carried by Schmidt[5] clearly shows that the ancient town-ships were either to the north or to the south of this desert area of Persia and were situated on a definite line which indicates the trade routes from Sutkagen dor to Hamadan and from Kandhar to Hamadan (Map I). Though it is correct that there is no river in the south of Iran and Baluchistan[6] which is navigable all through the year and which including Helmand does not discharge into lagoons, and that there are moun-

1. The New Gresham's Encyclopedia (1927) Vol. I, p. 339.
2. Syce—Religion of the Ancient Babylon (London 1898) p. 31–23;
3. Sir Aurel Stein—*Archaeological Reconnaisnance in N. W. India and S. E. Iran*—p. 193, 194.
4. Sykes, P.—*History of Persia* p. 18, 19.
5. Schmidt—*Flights over Ancient Sites of Iran* (Chicago) Map I.
6. Wheeler—The Indus Civilization p. 4–5.

tains running parallel to the sea ooast creating conditions of scarcity and poverty, yet when one comes across the ruins of ancient cities which yield proofs of developed proto-historic civilization, one is constrained to believe that these parts, once more thickly populated than today must have had a more congenial climate in those days and would have been connected with other cities by trade routes.

The Southern Route —Alexander seems to have rested his army at Fehruj connected with the capital of Gedrosia after his disasterous march through Makran.[1] This capital of Gedrosia ought to be somewhere close to Bampur[2]. From Arrian's account of Alexander's march it is clear that his suffering came to an end when he reached Gedrosia. The route which linked Gedrosia and India in the days of Alexander, may have been more frequented two thousand years before him with a better climate. The main difficulties[3] which Alexander faced were the want of water and food supplies. With a better climate perhaps the rivers would have been full and the jungles replete with wild birds and small animals. On this route the traders would have passed from Mohenjodaro to Lohumjodaro, thence to Pandi Wahi, from where they would have gone south to Alimurad, Lohri, Ghaze Shah, Shah Hasan, Gorandi and thence to Jhangar, Dam Buthi, Bhandani and Amri which would have been a centre of contact with the merchants of Chanhudaro. From Amri they would have gone to Pokharan and then following the course of the river Baron to Karchat, Khajui, Shahjo Kotiro, Arabjo Thano[4], Ahmad Shah, Bashoni and thence to Disoi from where crossing Darwat pass they would have reached Thano Bulla Khan. There is a road which connects Thano Bulla Khan with Amilano.[5] From here they would have gone to Orangi[6] which may have been one of the ports connecting India with Persia. This is the southern most point of Sind up to which the extension of proto-historic culture has been traced. Thence crossing Hab river they would have reached Sonmiani from where they would have gone to Las Bela via Uthal.

1. Curzon—*Persia* II, p. 263.
2. Sir Aurel Stein—*Archaeological Reconnaissance* p. 113.
3. Sir Aurel Stein—Archaeological Reconnaissance in N. W. India and S. E. Iran p. 137.
4. Majumdar—Arch. Surv. of India Memoirs 48 p. 136.
5. *Ibid*—p. 143.
6. *Ibid*—p. 144.

It is interesting to note that the civilization discovered at Mohenjodaro, Harappa and Chanhudaro grew in the environments of a great river as did the civilizations of Mesopotamia and Egypt in the areas surrounding Tigres, Euphrates and the Nile and then extended towards the south to Gujrat. These rivers would have contributed greatly to the trade traffic of those days. The discovery of the proto historic sites in Baran and Mol valleys[1] suggests that the ancient lines of commerce passed through them. Crossing Hingal river the merchants would have reached Sutkagendor from where they would have gone to Jinwari where carnelian beads, a copper ring with a bezel top, earrings of silver, bangles of copper etc. all of Mohenjodaro types have been found[2]. From here they would have gone to Nastarabad and Bampur decoration on the wares of which site show affinities with those of Kulli and Shahi Tump (ibex and tree with broad leave).[3] Thence they would have travelled to Khurab. The camel-headed hair pin and the gold mounted bead of this site[4] suggest affinities with similar articles unearthed from Mohenjodaro[5]. From Khurab to Rigan via Râzman and Hinjareh[6] would not have been a difficult journey. The Caravan would then have passed on Tell-i-Iblis another chalcolithic site[7] where pot-sherds with wavy line decoration have been found. Some of the pottery of this site bears close resemblence to that of Khurāb. The caravan then would have passed on to Kirman via Jiruft and the fertile tracts of upper Hillal Rud. From Kirman they would have gone to Barahmanabad, Yezd, Ardakan and Ardistan from where they would have reached Tepe Sialk[8]. The decorations on pot-sherds of this city are comparable with those of the early pottery of the Indus Civilization. From Tepe Sialk they would have gone to Qum, an important centre of trade. From Qum the traders taking the south

1. Majumdar—Arch. Surv. of India *Memoirs 48* p. 153.
2. Sir Aurel Stein *memoirs no. 43*. p. 81.
3. Sir Aurel Stein—*Arch. Reconnabneeer, N. W. India and S. E. Iran* (1937) pl. VII-A 392 (Bampnr) pl. XVIII-B. 1. 122 (Khurab).
4. *Ibid*—pl. XVIII-Khur E. I. 258, and pl. X. Khur 259.
5. Mackay—*F. E. M.* pl. C-10 etc.
6. Sir Aurel Stein—*Arch. Recon.* p. 134.
7. *Ibid*—p. 167, 168.
8. Quetta Ware is Comparable to that of Sialk III; Piggott—The Cronology of Pre-Historic India *Antient India No. 1* (1946) p. 22.

western route to Hamadan would have gone via Sultanabad. From there via Behistan, Karman Shah[1] and Kasre-i-Shirin they would have reached Khafajeh and Kish (Map I). From Ardistan it appears that a route via Isfahad, Qumi Shah and Yezd Khase went to Persepolis and thence to Susa via Shirdz, Bandar Bushire and Bandar Dilam Ahwar (Map I). Tel-i-Bakun at Persepolis corrosponds to Uruk in its final phases[2]. At Susa[3] a greenish grey steatite vase has been found which compares favourably with similar examples from Mohenjodaro[4]. Copper stamp seals and mirrors (with and without handles) found here are comparable with their counterparts of Shahi Tump and Mehi. Some of the ornaments of Susa also compare favourably with those of the Indus Valley as has already been suggested in the foregoing pages.

Similarly it appears that a route passed from Sutkagendor via Zongian, Shahi Tump and Turbat to Kulli, Nokjo Shahdinzai and thence to Nandara, Mehi, Nal, Shahi-Tump and Quetta which was perhaps at the cross routes from Kandahar and Johb,-Loralai areas[5]. The Sibi-Jacobabad route is a major link between north and south Baluchistan, and it appears that this route existed in the proto-historic period also. Near Sibi an early site of the proto-historic period has recently been noticed by the archaeological department of Pakistan[6].

Perhaps Mehi was the centre from which vessels with decoration of interwoven matting pattern, representing a central hut with a door and windows [pl. XXVIII A, figure (1)] were distributed east and west[7]. Similar designed pots[8] have been found at Bampur, Katukān, Khurab[9], Khafajeh, Ur, Kish, Lagash, Adab, Mari, Bandar Bushire and Mohenjodaro.[10] It has, therefore, to be presumed that

1. Sir Aurel Stein—*Old Routes of Western Iran* p. 413–418.
2. At Susa II level—Contenaw, G.—*Manuel d' Archeologie Orientale* p. 576.
3. Mecquenem—Excavations at Susa *Antiquity* Vol V (1931) p. 330–343 and *M. D. P.* Vol. XXV p. 213–55.
4. Mackay—*F. E. M.* pl. CXLII–43a.
5. Fairservis—*American Museum Noviates* p. 3.
6. *National Herald*—Nov. 4, 1957 p. 1.
7. Piggott—*Pre-historic India* p. 117.
8. Mackay—Antiquity VII (1933), p. 84.
9. Stein—*Arch. Recon.* pl. VI–a.
10. Marshall—*M. I. C.* Vol. II, p. 369.

Kulli and Mehi, were connected with Sutkagendor which was on the trade route to Mesopotamia and which may have acted as the clearing house for the goods of these upland towns.

Northern Route —It appears that the northern route represents the west and east traffic between the periods of Sialk III-5 and Hissar I-c. Technicians wellversed in the painting of Ibex with trees and broad leaves on potteries perhaps travelled along this route and finally settled in the Zhob Valley. Though it is difficult to trace a well connected chronological sequence on the basis of Rana Ghundai alone yet the ceramic remains persuade us to this presumption. At Nishapur pot-sherds like those of Anau II and III levels have been found from where the highways may have passed to Herat and Farrah plain, an area which has recently again been surveyed.[1] The pottery of Gordan Reg is comparable to that of Iranian Seistan.[2] Disc, tubular, and barrel beads similar to those of Mohenjodaro have been found near the neck of a skelton in a cemetery which was uncovered here. On this route is Nade-Ali[3], a protohistoric site (7) the archaeological remains of which link it up with Sialk cemetery B, and Moghul Ghundai in Baluchistan. In southern Seistan Kalat-a-gird, Machiram, Rud, Sahra-i-Sokhata occuppy favourable geographical positions. It is thus possible to link up Hissar, Nishapur, Harat, Ferrah, Seistan, Kandhara and Quetta areas. Perhaps the traders of Sialk III-5 and Hissar 1-c may have followed this route [Map I] and later those of Shah Tepe II Turang Tepe and Anau III period may have traded with the cities of the Indus Civilization.

Later again Jhukar seems to have received influences from this direction. This northern route perhaps followed the course of the Indus from Mohenjodaro to Jhukar and then went to the north up to Limo Junijo where it crossed Nari river. Along the bed of Nari River at Pandiwahi there is a path for camel traffic leading to Lak Phusi and Lak Rohel etc.[4] Proceeding northwards from Limo Junijo they would have reached Dabarkot, then Sur Jangal, Rana Ghundai and Taxila which is on the

1. *American Museum Noviates No. 1587* p. 28.
2. *Ibid*—p. 30.
3. Ghirshman R.—Fouilles de Nad-i-Ali dans le Seistan Afghan—*Revu des Arts Asiatiqness Toure* XIII—19. 9. 42 p. 10-22.
4. Majumdar—*Arch. Surv. of India Memoirs 48* p. 153.

edge of the Indus plain[1], thence to Peshawar after traversing Hassan Abdal Hotti Mardan, Chor Sadda[2]. From Peshawar the ancient route to Kandahar would have followed Jalalabad, Kapisa, Ghazani, Kalat-I-Gilzai and Kandahar[3]. A route joined Quetta to Kandahar via Pishan, Chaman and Boldak Fort[4]. Deh Morasi is on Quetta Sibi Road[5] which may have connected Quetta with Kulli and Mehi. From Kandahar the traders perhaps went to Girishk crossing Helmand river and then reached Dilaram. From here they would have gone to Farah, thence to Herat via Sabzawar[6]. From Herat they would have gone to Turbat-i-Haidri from where they would have reached Nishapur. Another route to Nishapur may have been via Rudbar, Nad-i-Ali[7], Nastarabad, Neh, Birjand, Rui Khaf, Turbat-i-Haidri, Sarifabad. The ceramic material of Nishapur is comparable with Pumpelly and Anau II levels. Ibex design is seen here also on the potteries. Meshed is 105 kilometers from Nishapur, via Dehrud and Kakam Shah villages, from where an ancient route passed to Merv. From Nishapur the route to the west passed probably via Main Dasht and Tepe Hissar to Damghan. Early phases of Hisar equate with Sialk III, Gyan V-c and V-d and Susa-A[8]. Copper objects of Hissar are similar to those of late Mohenjodaro and Jhukar cultures. Important link with Indus Civilization are the coiled bangles[9] of Chanhudaro type, etched carnelian beads of the later period, notched beads[10], segmented beads. spiral headed pins, fillets with dotted ornamentation etc. already mentioned. Hissar is near Damghan and seems to have three occupational levels, the uppermost does not go beyond the Ubaid times and the lowest to mid-Uruk period. During this period it must have been an important trade centre. Perhaps the route went north to Asterabad via Rhages from Damghan, the old capital of Parthians[11]. The name of Rhages occurs

1. Berger—*Geographical Journal* (1939) Tome I, Vol. I, p. 380.
2. Foucher—Le Vieille route dec Inde Map. opp. p. 39.
3. *Ibid*—Map. opp., p. 9, fig. 3.
4. Sykes—*History of Persia* Map I
5. Faiservis—*American Moseum Noviates* p. 3.
6. This can be identified with Sonsia near the Present town of Sabzaware Arrian—Indica III-XXV.
7. Ghirshman—*Revue des Arts Asiatiques* Tome XIII (1939-42) ps. 10-22.
8. Piggott—*Ancient India No. I*, 1946; p. 19, 20,
9. Schmdit—*Hissar* p. 120, H 4262, II 4263.
10. *Ibid*—p. 231 etc.
11. Foucher—*op. cit.* p. 6.

in the inscription of Behistan[1]. Then one route reached Hamadan[2] via Raiy or Rhages, Karun and the other via Sultanabad. Hamadan the old Sumerian capital of Archemendes[3] was perhaps at cross roads. At Hamadan the southern route probably met the northern as it does today. Fouchar says about this route[4] (*Sur la partie occidentale de cette route nous possedons des informations precises grace a la description Qu'Isidore de chavax avait dit en redigee pour l' Empereur Auguste et qui nous a ete conservee.*) About this part of the country we fortunately possess precise information in the description of the inscription of Emperor Augustus at Isidore. *"La vieille eapital d'ete' des Achemenides aujourd' hui'. Hamadaup vis Rhages c'est a dire Ray'* (1). The Halwan pass near Kasre-i-Shirin today connects Bhagdad with Hamadan and the route would have possibly passed through it in ancient days also. On this route lie Karman Shah, Tell Asmar and Khafaje. From Khafaje the traders must have gone to Jamdet Nasr, Kish, Nippur, Umma, Lagash, Worka, Uruk, Larsa and then to Ur Eridu. The connection between the designs and forms of ornaments of Kish and the Indus Civilization have al ready been indicated.[5] Similarly the connection of Indus Civiliztions with Khafaje, Tell Asmar[6] Ur[7] and Nippur have also been pointed out. All these connections must have necessitated a regular trade channel. From Khafaje the traders may have gone to Samara, Assur, Hatra, Tell Hussuna, Musal and Nineveh where again beads of the type of Indus Valley have been found[8]. It is possible that from Nineveh were nearby there is an *obelisk* of black stone at shatamananassar bearing an elephant and a rhinosceros[9] of the type seen

1. F. A. Khan—An Archaeological Study (Thesis Lond. Univ. 1953) p. 43.
2. Herzefeld—A New Inscription of Darius from Hamadan, *Arch. Survey of India Memoirs 34*, p. 2.
3. Foucher—*La Ville rovte de i' Inde*—Map, *op. cit.* p. 4.
4. Foucher—*La oieille route de l' Inde* Tome I, Vol. I, Introduction, p. p. 4.
5. Mackay—Further Links between Ancient Sind, Sumer and Elsewhere—*Antiquity* Vol. V, p. 479–473.
6. Frankfort—The Indus Civilization and the Near East, *Ann. Bibl. of Indian Arch.* Vol. VII (1932) p. 1–9.
7. Childe, C.—*New Light on the Most Ancient East* p. 177.
8. Beck, H. C.—Beads from Neneveh—*Antiquity* Vol. V, p. 429 No. 17–18.
9. J. Kennedy—The early Commerce of Babylon with India *J.R.A.S.* 1898 p, 259–260.

on the seats of Mohenjodaro. Anatolia goods used to be exported to other countries like Crete and Egypt respectively by Assyrian traders. Their presence in Anatolia round about 1903 B. C. supports this argument[1]. Like Ezion geber king Solomon (1 kings ix-26, 27, 28) Ugarit may have been another ideal clearing house, situated as it is on the Mediterranian sea where also fillets of gold with dot decoration on the edges have been found[2] almost like the Mohenjodaro example[3]. Bracelets of bronze resembling those of the Indus Civilization occur here. The old route from Syria appears to have passed through Palestine for Egypt.

Another route must have passed from Nishapur via Tus and then winding through Mazadan pass would have reached Merve via Mashad from where it would have gone to Samarkand. Similarly it appears that from Astarabad which was an important trading centre for Van Bear-tin[4] of Mohenjodaro bronze one route passed via Shah Tepe, Turang Tepe, Jurjan, Bejmurd and Kunchan to Askabad. The The site of Anau here like Sialk has two mounds north and south. At the northern mound of this site two phases of cultures I, II, are visible and at the southern again there are two later phases viz. III and IV. The Turqoise bead,[5] the copper stamp seals,[6] spiral-headed pins[7] [plate XLV, figs. (s), (t), (v), (w), (z-3) and (z-4)] and three sided amulet seals[8] of Anau III phase like those of Mohenjodaro suggest that Anau had also some trade connections with Mohenjodaro culture of the later period. From Askabad the traders may have crossed Tejand river and reached Merve and then to the fertile country where in later ages lived the Bactrians[9].

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1. O. R, Gurney—*The Hittites* (Pelican Series), (1952) —p. 18; 16.
2. Schaeffer, F. A.—Ras Shamra ugaret—*Syria*, Vol. XVI (1935) p. 144, fig 3
3. Mackay—*F. E. M.* pl. CXXXV-6.
4. Gouland—*Metals* in antiquity—J. R. A. I. Vol. XIII—1912 p. 252, Marshall—M. I. G. Vol II, p. 483–84.
5. Marshall—*Mohenjodaro and the Indus Civilization* Vol. I, p. 34, pl. CLI–b2.
6. Pumpelly—*Explorations in Turkistan* p. 153, pl. 37–(17).
7. Piggott—Pins and Maceheads from Harappa, *Ancient India No. 4*, cal. (1948), 26–40.
8. Pumpelly—*op. cit.* p. 45, pl. 43–(8).
9. Foucher—*La Vieille route de 1' Inde* p. 8.

Along the Caspian sea in the west of Iran along the Safidurd Valley to Kazvin and Tehran there is a road which may have been built on the old track. In the centre also there is a road from Ammal to Rey. There is again a road from Shahrud to Bostan and to Astarabad. This was perhaps the route which Scythians followed in the seventh century[1] and may have been constructed on the old track. The road from Kazvin to Tabriz is via Sultaneh Mienish and Turkaman. Tabriz today is one of the best towns of the province of Ajarbaizan but the present route to Tabriz via Sultaneh does not appear to be an old one.

Internal Trade Routes —Though it is difficult to mark out the routes which traders of the Indus Civilization took for their internal trade between the different sites which may have been in those days flourishing townships, yet from the uniformity of culture observed in the different periods of the Indus Civilization on the various sites one is led to believe that trade routes did exist between them.

River Route —Most of the trade may have been carried by land, but it appears that a large part of the traffic was also carried by the rivers as most of the sites of the Indus Valley are situated on the banks of Indus, its tributaries and the lost river of Saraswati[2]. As has been suggested before, to carry merchandise from Rupar to Mohenjodaro by boats would not have been difficult for those who could reach Kish and Khafje from Mohenjodaro by sea.

It may, however, be suggested that the land route may have followed the course of the Indus, its tributaries and the Saraswatis, a small river with flows in the plain about 30 kilo meters west of the river Jamna near Thaneswar today and is lost in the Rajputana desert.[3] This is a partof the route from Dvārkā to Hastināpura indicated in the Bhāgavata.[4]

Land Routes —Most probably the traders going by land route used to pass via Amri, Damb Buthi, Jhangar, Gorandi, Ghazi Shah, Lohri, Ali Marad, Lohumjodaro, Mohenjodaro, Jhukar and then crossing the Indus where Nari river falls in it[4] following its left bank would have reached Sutlej and then turning right would have follow-

1. Sykes—*History of Persia* p. 124.

2. Oldham, C. F.—The Sarasvati and the lost riuer of the Indus Desert, *Cal. Rev.* (1874 (No. 59, p. 1-27.

3. Krishnan, G.—*geology of India and Burma* p. 26.

4. Bhāgvata X,—71, 21-11.

5. Piggott—*Pre-historic India* p. 71, fig. 2.

MAP
0
SCALE
100
THE ROUTES
SITES
MODERN CITIES
FR. SANDEMAN
DERAGHAZI KHAN
DABARKOT
LAHORE
RUPUR
R. RAVI
HARAPPA
CHAK PURBANE
SYAL
R. SUTLEJ
BAHAWALPUR
R.
THE INDUS
JACOBABAD
BIKANER
KOTASUR
MOHENJO-DARO
LOHUMJO-DARO
ALI MURAD
PANDI WAHI
LOHRI
GHAZI SHAH
AMRI
CHANHU-DARO
SHAHJO-DARO
THANO BULA KHAN
KARACHI
AJMER
JODHPUR
LUNI R.
PACHPADRA
BAIDRA
SUKRI R.
PALENPUR
BECHRAJI

ed the course of the Sarasvati and reached the proto-historic sites of Bahawalpur state, from where they would have followed this river and reached the other sites in Bikaner state. From here it would not have been difficult journey. For reaching Harappa from Mohenjodaro traders would have followed the right bank of the Indus to the point where it meets the Jhelum and then crossing Indus and Jhelum they would have reached Harappa.

It has been suggested by Wheeler[1] that the Indus Valley obtained its supply of copper from Shah Bahlul in Baluchistan or Khetri in Rajputana. Mackay suggests that the possible source of copper was from Oman[2] in the Persian Gulf. Old workings of copper exist in Jaipur state[3] and this copper contains the same percentage of nickel as that of Mohenjodaro. It is, therefore, more likely that copper may have been brought from Rajputana. Wheeler, further suggests that tin which was being mixed to produce bronze in Mohenjodaro[4] was obtained from Hazaribagh[5] or Afghanistan. Old workings exist in Hazaribagh[6] near the coal fields, but Hazaribagh in all probability would have been inaccessable to the traders of Indus Valley unless they come by Jamuna which perhaps flew parallel to Saraswati and fell in the Arabian sea[7]. To reach Hazaribagh it would be again necessary to cross the whole of Uttar Pradesh and a part of Behar. The probability of contact of Indus people with Hazaribagh thus becomes remote. We therefore, presume that the Indus Valley jewellers were getting all their copper from Afganistan. Wheeler further suggests that a part of the gold supply of the Indus Valley may have come from Mysore[8]. Old workings have been noticed in Hutti, Topuldadi and Wondali in Hydrabad[9] where Dharwanian rocks exist[10]. Old workings also exist in Kairirdhalli and

1. Wheeler—*The Indus Civilization* p. 58.
2. Mackay—Arts and Crafts in the Time of Mohenjodaro. *Indian Art and Letters* Vol. XIII, No. 2, (1939) p. 79.
3. Krishnan—*Geology of India and Burma* p. 158.
4. Marshall—*M. I. C.* Vol. II–485.
5. Wheeler—*op. cit.* p. 58.
6. Krishnan—*op. cit.* p. 158.
7. *Ibid.*—p. 25, 29.
8. Wheeler—*Op. Cit.* p. 58.
9. Marshall—*M. I. C.* Vol. II, p. 674.
10. Krishnan—*Op. Cit.* p. 156.

Anantpur in Madras[1] apart from Kolar gold fields in Mysore which have supplied gold to India from a very long time.

Sea Route for Internal Trade—For reaching these distant places in India in those early days the land route from Sind would have been almost impossible to negotiate and it appears that the traders starting from Otangi would have travelled south in their small boats[2] and reached the Western Ghats by the sea from Cutch to Rangpur and Lothal and thence would have reached Bhagatran on the Kim river[3]. Through these places the jewellers would have got their amazonite of Nilgiri and gold of Mysore. For, the high Western and Eastern ghats to the west and east of the Deccan plateau and Vindhya range to its north would have rendered trade contacts by land very difficult. Most probably Lothal, almost half way from Mohenjodaro and the Deccan and more easily accessable to the traders than Mysore, would have supplied the Indus Civilization most of its gold which in its turn would have got it from the south. Silver used in the Indus Valley for manufacturing vessels and ornaments contains some lead. Lead has also been found here in the form of ignots[4]. Silver of this type mixed with lead has been found in Rajputana near Ajmer and it is possible that it may have come from that part of India. Ajmer could have been approached through Luni River. Traders coming down from Orangi may have passed through the mouth of the Luni and reached Ajmer. It is possible that we may find another site like Lothal near the Kutch Sind border. For other materials of ornaments like Lapis Lazuli, the Jewellers would have gone either to Badakshan which is still famous for this stone or would have obtained their supplies from the market at *Kāndahār* the route to which place has already been indicated. Turquoise similarly may have come from Khorasan, a province of Iran on the northern route. The red paste may have come from the Islands in the Persian Gulf near old Hormuz as suggested before. Green felspar or amazonite may have come from Hirapur plateau[5] via Rangpur and Lothal and similarly shell

1. Marshall—*M. I. G.* Vol. II, p. 674.
2. D. K, Sharma—Daring Dhows—*Illustrated Weekly of India* 21. 8. 1597 p. 75.
3. Ghosh—*Indian Archaeology* 1956-57, p. 15-16; The Leader August 25, 1958. p. 4; The Leader April 14, 1959, p. 3.
4. Wheeler—*The Indus Civilization* p 58.
5. Wheeler—*The Indus Civilization* p. 59.

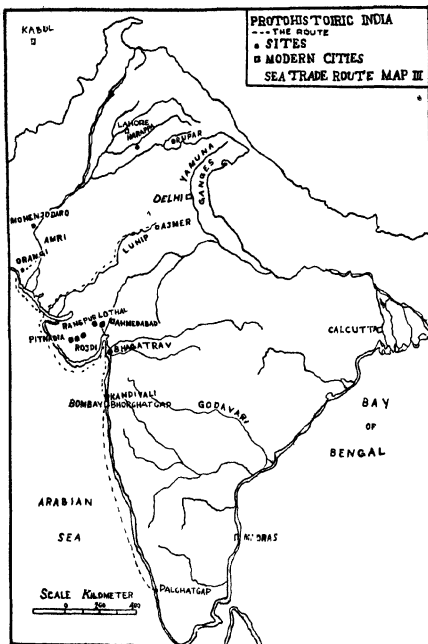
agate, chalcedony, carnelian, onyx and rock cystal may have been imported from Saurashtra. Perhaps Rangpur[1] and Lothal in Saurastra were the outlying trading posts like Sutkagendor through which regular supplies of raw material were being maintained. Here shank bangle fragments and pottery sherds decorated with chavern pattern, and concentric circles have been found[2]. Similarly from Lothal steatite, Indus Valley seals, beads of gold, faience etc. have been unearthed[3].

Communication between Harappa and the other cities must have been to a large extent through Indus and traders would have gone by boats as well as by land. Between Indus Valley and Rajputana and the Deccan the commerce most probably passed by the sea. The river Loni in all probability connected Rajputana with the Indus Valley.

Similarly Kathiawar and Deccan plateau would have been approached by the sea. The Bhorghat gap near Bombay would have helped the trade traffic between Sind and the South where at Paithan a Microlithic site has been noticed[4].

Indus traders might have reached Mysore through Palghat (Map III). Panikkar speaking of the histhorical period, says that the ports of the south from Bhrigu Kucha to Granganore on the west coast of India were in contact with the civilization of the middle east[5]. It is just possible that Indus traders also had contacts with Deccan through these gaps. As Gordon Childe[6] suggests, we have evidence of a net work of trade linking up the whole area from Tigris to Indus and its existence west of the Eupharates as far as the Nile. As mentioned before, articles such as amulet, cylindrical seals and stone vases for keeping cosmetics carved with representation of the wicker house found from the Early dynastic II temple

1. The tradition that Sea is the repository of all jewels and gold, may have been built up on the stories of seamen returning from Kathiawar, Gujrat, middle east and Deccan. Earliest reference of this tradition we get in *Atharveda* (V. 28. 6.)
2. Vats—*Arch Surv. Report 1934–35* p. 34–38.
3. *Hindustan Times* July 9, 1957, p. 5.
4. Krishnaswamy, V. D.—Stone Age in India—*Ancient India No. 3* (Jan. 1947) fig. opp. p. 28.
5. Panikar, K. H.—*A Survey of Indian History* p. 3.
6. Childe, G. *New Light on Most Ancient East*. p. 176.

PROTOHISTOIRIC INDIA
THE ROUTE
SITES
MODERN CITIES
SEA TRADE ROUTE MAP III
KABUL
LAHORE
HARAPPA
RUPAR
YAMUNA
GANGES
DELHI
MOHENJODARO
AMRI
AJMER
LUNIP
ORANGI
RANGPUR
LOTHAL
AHMEDABAD
PITHADIA
ROJDI
BHARATRAV
CALCUTTA
KANDIVALI
BOMBAY
BHORGHAT GAP
GODAVARI
BAY
OF
BENGAL
ARABIAN
SEA
PALGHATGAP
SCALE KILOMETER
0
200
400

of Khafaje[1], Mari, Ur and Susa etc[2] manufatured from the local stones in Makran and belonging to Kulli Culture; Indus seals or copies of Indus seals found in Mesopotamia; Susa[3] and Tell Asmar[4], the shell inlay pieces found at Eshnuna in Diyala[5] similar in shape to those found in the Indus Valley; the etched carnalian beads of different shapes found in Mesopotamia and Iran[6]; the vase from Tell Agrab depicting an Indian scene[7]; long carnelian beads of barrel-shape found in Mohenjodaro[8] of the type of Ur[9] and Kish[10]; peculiarly shaped notched beads[11] of the Mohenjodaro variety found at Hissar, Shah Tepe segmented beads of Harappa, Mohenjodaro and Chanhudaro type occuring at Tell Brak in northen Syria at Jamdet Nasr level in Crete or Middle minoan III level and in Egypt of the XVIII Dynasty[12]; the coiled bangles and rings of the Chanhudaro type[13] found at Hissar II and the Hissar III levels and also at Kish; the three toilet instruments in copper found in the Indus Valley of the type in silver found at Tell Asmar[14] and in gold at Ur[15]; and similar other finds, all lead us to the conclusion that

1. *Ibid*—p. 176; *O. I. C. 16* p. 53.
2. Woolley—*Ur, Excavations II* pl. 178, also *Syria* XVI (1935) pl. XXVII–3; *Antiquity. VI*—(1932) p. 356; *Antiquity. XVII*—(1943) p. 167.
3. Piggott—Antiquity XVII (1943), p. 178.
4. Frankfort—The Indus Civilization and the Near East. *Ann. Bibl. of Ind. Arch.* Vol. VII—(1932), pl. I.
5. *Oriental Institute of Chicago Communication* No. 16, P. 47–52.
6. Macky—Further Links etc. *Antiquity* Vol. V, p. 459–473.
7. Frankfort—*Illustrated London News* Sept. 12, 1936, p. 432–436.
8. Marshall—*M I. C.* pl. CLI–b.
9. Woolley—*The Development of Sumerian Art.* pl. 138, u. 11806, C. I.
10. Mackay—*A Sumerian Palace* Vol. II, XLIII–8.
11. Schmdit—*Tepe Hissar Excavations* p. 23, pl. XIX; Arne—*Shah Tepe* p. 84, 148, 149; pl. XCII; Marshall—*M. I. C.* pl. CXLVI–37.
12. Mackay—*Jurther Excavations at Mohenjodaro* p. 511; Stone, J. F. S.—*Antiquity* XXIII (1949) p. 201–5; Mallowan, M. E. L.—*Iraq* IX, p. 254 ff.
13. Mackay—*Chanhudaro Excavations* pl. XC–34; Schmdit—*Hissar* p. 120, H. II. 2169, H. III. 4252 etc.; Mackay—'*A*' *Gemetery at Kish* Vol. I, p. 53, pl. XX–14 etc.
14. Frankfort—The Indus Civil. *An. Bibl. of Ind. Arch.* Vol. VII (1932) p. 8.
15. Childe—A New Light on the Most Ancient East pl. XXV–b. U. 9340'

CHAPTER XI

CONCLUSION

Ideas expressed in form need not be photographicr epresentations of known objects for effective communication. A symbol, an emblem which is an arbitrary mark and abbreviating method can equally serve the purpose. For, when conventionalised, it helps to produce the same impression as letters of a script forming words. Losing its realistic appearance it thus takes an idealised garb. It is in this background that jewellery and its ornamentation should be studied, for it is also one of the idealised forms of human thoughts. It represents in its form and decoration, the aspirations, the fears, the jealousies, the ambitions, the beliefs religious and superstitious, the economic conditions, the trade relations, and the chemical knowledge of a people of a certain age. It thus helps us to collect valuable data for building up the history of civilization especially of the primitive man some of whose main industries were the growing of food, the making of implements and arms, the making of pots and pans, the making of bricks, the making of cloth and the jewellery for decorating himself. The jewellery of the Indus Civilization and the bejewelled terracotta figurines of men and women of different levels of this complex civilisation described in the foregoing pages lead us to the inevitable conclusion that the people of the east were no less fastidious than their Egyptian and Sumerian brethren of that age and no less eager to adopt new fashions. There is little doubt that they had contacts with the other parts of the civilised world of their time, which gave rise to new developments in the form and ornamentation of their jewellery which has changed and becomes complex at each successive level. Change is an inevitable consequence of contacts whether it be for the better or for the worse and it is this change which helps us to know the historical development of the country.

The pre-pottery level reached at Kile Gul Mohammad[1] in recent cuttings which equates with Jericho in Jordan[2] and Jarmo in northern

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1. Fairsevers—*American Museum Noviates* Sept. 1952 No. 1587, p. 18.
2. Garstang, J.—L'art Neolethique a Jericho *Syria* Vol. XVI. (1936 p.355–357.

Iraq[1] has not yielded any ernaments. Thus for purposes of jewellery identifications we are left with the Quetta Culture which appears to have succeeded the pre-pottery level. The pottery figurines found here were elaborate jewellery on the head and on their necks as has been described before. The pottery sherds from Dehmorasi and Damb Sadat[2] are comparable with the earlier Quetta ware described by Piggott[3] and Kechi Beg potteries have affinities with Amri ware. It is, however, difficult to determine their chronological sequence on the scanty evidence so far available. The jewelleries on the figurines [Plate I] from these early levels of culture, however, show a development as noted in the foregoing pages. They belong to two different phases of culture-phase I & II.

From the earliest level of Amri terracotta biconical beads with incised decoration have been found[4]. These are perhaps the earliest ornaments of this culture. The other sites of Lake Manchhar and the Las Bela State appear to have three levels of culture. The terracotta beads of the same shape as those of Amri found at Pandi Wahi[5], Ghazi Shah[6] and other sites[7] belong to the first Amri level.

To the second Amri levels belong the long terracotta bead, the unpainted terracotta bangles fragment, the copper beads, the copper ring, the copper bangle fragment, and the thin copper sheet and a part of fillet from Ghazi Shah[8], the terracotta bangle fragments and the copper beads of Alimurad, the terracotta boss of Pandi Wahi, the bone beads, the worked bone, the copper pendant described as seal from Nal[9].

The terracotta bangle fragments marked with thick lines of red, the shank bangle fragments, the green falspar beads, the steatite discoid beads from Amri[10], the steatite beads, the stone beads with

1. Wheeler—*The Indus Civilization* p. 9.
2. Fairservers—*American Museum Noviates* p. 13, 17.
3. Piggott—A New Pre-historic Ceramic from Baluchistan. *Ancient India No. 3*, fig. 2, opp. p. 134.
4. Majumdar—*Arch. Surv. of India Memoirs 48*. p. 52.
5. Majumdar—*Arch. Surv. of India Memoirs 48* p. 113, PW. 280–281.
6. *Ibid*—p. 102, G. S. 372.
7. *Ibid*—p. 136–137.
8. *Ibid*—p. 102–103.
9. Hargreaves—*Arch. Surv. of India Memoirs 35* p. 42. and p. 32.
10. Majumdar—*op. cit*, p. 33

natural markings, the lapis lazuli beads etc. from Pandi Wahi,[1] the steatite beads, the carnelian beads, the terracotta bangle fragments, the shank bangle fragments from Ali Murad[2], oblong shank pieces from Gorandi[3], the steatite beads, the carnelian beads, the agate beads, the semi-opal beads, the silver ring from Ghazi[4]., the small shell bangles, the steatite ear ornament described as seal, the marble ring stone, and the various beads of agate, lapis lazuli, carnelian, the silver fillet pieces etc. from Nal[5] all belong to the third phase of development.

The ornaments found from the sites of the Zhob Valley Culture also show that they belong to three different levels of culture. The clay, the bone, and the copper bangle fragments, the stone beads and the disc of silver etc. from Dabar Kot[6]; the clay and the polished bone bangle fragments, the bronze rings, the perforated bone beads from Periano Ghundai[7]; the clay and the bone bangle fragments, the copper and stone beads from Surjangal[8]; the clay bangles, beads of stone, the simple copper rings of round rods from Moghal Ghundai[9]; the bronze bangle, the bronze button from Kundani[10] belong to the earlier level; while ornaments like the neatly worked gold pin, the small plate of gold folded over the stone and beads from Dabar Kot[11], the silver bangle with adjustable ends, the inlaid bead etc. from Moghul Ghundai,[12] the black stone bead inlaid with white paste from Periano Ghundai,[13] the inlaid bead from Kundai[14] etc. belong to the second phase. To the third phase belong the copper buckle from Periano Ghundai, the jade

1. *Ibid*—p. 113.
2. *Ibid*—p. 107, 108.
3. *Ibid*—p. 106.
4. *Ibid*—p. 103.
5. Hargreaves—*Arch. Surv of India Memoirs* 35 pp. 32, 41, 42, 40.
6. Stein—*Arch. Surv of India Memoirs* 37 p 60, 61.
7. *Ibid*—p. 37, 38.
8. *Ibid*—p. 75.
9. *Ibid*—p. 45, 47.
10. *Ibid*—p. 42.
11. *Ibid*—p. 60, 61.
12. *Ibid*—p. 47, 48.
13. *Ibid*—p. 40, 438.
14. *Ibid*—p. 42.

bead from the engraved copper ring, the necklace ends of paste from Moghul Ghundai, the black glass bangle fragments from Periano Ghundai and Dabar Kot etc. The figurines though apparently belonging to one culture also appear to have come from three levels. Figurines on (b), (c), and (d) [plate V] appear to be of the latest. The figurines on (a) and (c), however, belong to the middle phase. The Zhob Valley culture on the evidence of pot-sherds belong to Rana Ghundai I and II levels[1]. The evidenee of ornaments also leads us to the same conclusion excetp that the latest phase here appears to be later than Rana Ghundai III.

The jewellery recovered from Kulli-Mehi Culture so far appears to belong to two phases, one earlier and the other later. For example, the bone bangle fragments, the bead necklace, beads of pinkish agate and black stone, possibly onyx from Mulli[2]; the copper rings; the copper bracelets, studs from Mehi[3] etc. belong to the first level of culture, while the hair-pin studded with a lapis lazuii[4] from Mehi, the gold fillet and the ornamented glass bangle fragments are of the later phase. The ornamentation on the clay figurines also makes us feel that they come from two different levels, for examples figures (a), (b), (d) and (e) [plate VI] appear to be of the earlier phase than figures (c), (h), and (k). Piggot is of opinion that Harappa and Kulli cultures were flourishing side by side[5], but it appears from the primitive form of some of the ornaments mentioned before that the first phase of Kulli belongs to a period earlier than the fully matured Harappa culture. The other ornaments of the second phase, however, seem contemporaneous with Harappa culture. The house urns of the type on [pl. XXVIII] fig. (1) of Kulli found at Khurab, at Mari, at Khafajeh, at Lagash, at Adab, at Susa, at Bandar Buchir have made it possible to date the second phase of Kulli near about the early dynastic Sumer. The terracotta pot-sherds from Susa illustrated by Piggot[6], however, disclose a more developed representation of animal and traces than those on

1. Rose, E. J. A —A Chalcolithic site in Northern Baluchistan-*Journal of Near Eastern Studies* (July 1946) Vol V, p 287.
2. Sir Aurel Stein—*Arch. Surv. of India Memories 43*, p. 123, 124.
3. *Ibid*—p. 158.
4. *Ibid*—p. 158.
5. Piggott—*Pre-Historic India* p 114, 115.
6. Piggott—*Ibid*, fig. 12.

the pot-sherds of Kulli[1] and should belong to a period slightly later than Kulli phase II.

Harappa culture as it presents itself before us in its entirety discloses a highly developed state of society. It must be mentioned that inspite of all efforts of Wheeler, the stratigraphic evidences are still wanting for a thorough study of the development of the various phases of this culture. The jewellery of Harappa Culture consists of fillets, hair-pins, necklaces, amulets, bangles, girdles etc.[2] as described before. Some of these on stylistic grounds are of earlier workmanship than others. A cursory glance at the ear studs illustrated on [Plate IX] fig. (b) to (f) shows how the ear studs on figure (f) must have been made prior to the one on figure (g) for example, the finger-ring on figure (s) on the same plate with a bazel top must have been similarly manufactured after the one on figure (a). The same is the case with the beads illustrated here on [plate XII] especially the decorated carnelian ones like the one on figure (j) They should be of a later period than the undecorated carnelian beads. In the same way the segmented bead on figures (t) with five compartments should be of a later phase than the one on figure (q) with two. The barrel-shaped bead of burnt steatite decorated with trefoil design[3] and then painted with red colour is surely of a much later period than the plain steatite beads. It must have been at a comparatively later period that people would have considered it necessary to further augment the charm of the bead by decorating it with a sacred symbol. The bangles, whether of pottery or of faience illustrated on [plate XI-B] and [plate XI-A] show that with the passage of time their designs became complex till the form of the heart-shsped bangles[4] like the one on figure (t) was evolved, and the pottery bangles[5] on figure (VI), (VII) [plate XI-B] were manufactured. In the same way, the heart-shaped pendant[6] definitely belongs to the period of the highest glory of Harappa Culture before which several other forms would have been

1. *Ibid*—fig. 7.
2. Vats—*Excavations at Harappa* pr 432, 50; Wheeler–Harappa, *Ancient India No. 3* (1947), p. 121–124.
3. Vats—*Excavations at Harappa* p. 434, pl. CXXVIII–5.
4. *Ibid*—pl. CXXVIII–2.
5. *Ibid*—pl. GXXVIII–7.
6. *Ibid*—pl. CXXVII–8,

tried. The Harappa culture lasted for quite a long time and it was at some stages contemporaneous with Mohenjodaro as is evident from the designs of jewellery. The similarity in the forms of different objects has led Piggott also to surmise[1] that the twin cities of of Harappa and Mohenjodaro were ruled by priest kings weilding autocratic and absolute power from two main seats of government. From the point of view of the designs of ornaments one is, however, led to feel that Mohenjodaro Culture at least in some of its phases exhibits cultural development of a later period than Harappa. The most patent example of this fact is to be found in the form of the gold cones found from the two cities.[2] The Harappan example is only a simple cone while the Mohenjodaro piece has another cone superimposed at the top of the main body [pl, XX, fig, (c)]. Similarly the steatite bead bearing trefoil design from Harappa referred to have has no central dot, while the example from Mohenjodaro [pl. XXVIII] is ornamented with double lined trefoil pattern having central dots. The necklace ends also are not only semi-circular as found at Harappa but also in the shapes of half moon and triangles [figs. (z–11), (z-12), pl. XXVIII.]. In every ornament some advance is visible.

Dividing Harappa Culture, therefore, in three phases roughly, leaving apart Cemetery H., we can say that the simpler pieces of ornaments like the gold fillets, the copper ear-rings[4], the round gold beads of necklace[5]. and the finger ring[6], the simple ear-tops[7] etc. appear to belong to the first phase, while the more complex pieces like the necklaces with composite bead pendants[8], the gold cone-like ornament[9], the plum shaped ear-drops[10], the

1. Piggott—*Pre-Historic India* p. 153.
2. Vats—*Excavation at Harappa* p. 64, pl. CXXXVII–2; Marshall–M. I. C. p. 519, pl. CXLVIII b-2.
3. Vats—*Excavation at Harappa* pl. CXXXVII–22.
4. *Ibid*—pl. CXXV, 3-7.
5. *Ibid*—pl. CXXXVII-7.
6. *Ibid*—pl. CXXV–55.
7. *Ibid*—pl. CXXXIX–14.
8. *Ibid*—p. 65.
9. *Ibid*—pl. CXXXVII–2.
10. *Ibid*—pl. CXXXIX–31.

decorated faience bangles[1] etc. belong to the second phase; and to the third phase belong the heart-shaped ornament already referred to, the lotus-shaped inlaid pendant[2], the inlaid cone-like head ornament[3], the decorated steatite beads already referred to, the etched carnelian beads[4], the broach[5] in the shape of figure '8', the animal-headed pin[6] and the heart-shaped bangles etc. Then perhaps the cultural development ceased and the fall commenced.

As mentianed before, the head ornaments of the figurines of Harappa show a distinct development which becomes complex with the afflux of time. Similar is the situation with the neck ornaments and the ear ornaments of the terracotta figurines. For example, the figurines on figs, (h) and (g) [plate XV] appear to be of the first phase while those on (a), (b) and (c) of the second phase and figurines on (d), (e) of the third phase.

Similarly the figurines on (a), (b), (j), (k) [pl. XVI] appear to be of the first, while (e) and (f) of the second and figurines (d), (h), (i) belong to the third phase. The figurines (c) and (g) appear to represent foreigners. Similar figurines with the tall caps and metallic look[7] have been found at Mohenjodaro. These people may have come either from Sumer where a similar cap is seen on the head of Hammurabi[8] or from the Hittite area where also a similar though ornamented cap is seen on a later sculptured head of King Varpalavashi[9]. The third set of figurines [pl. XIV] also appears to belong to three separate phases, the figurines on (i) appear to be of the first phase, those on (b) and (c) of the second and figurines (d), (e), (g), and (k) appear to be of the last phase. This division of Harappa Culture into three phases on the basis of the stylistic development is supported by recent pottery evidence also. We find

1. *Ibid*—pl. CXXXVIII–16 etc.
2. *Ibid*—pl. CXXXIX–7.
3. *Ibid*—pl. CXXV–51.
4. *Ibid*—pl. CXXXI–4a.
5. *Ibid*—pl. CXXXVII–15.
6. *Ibid*—pl. CXXV–34.
7. Mackay—*F. E. M.* pl. LXXIV–15.
8. Hammurabi's code—*Louvre* (1791–1749 B. C.); also Hrozny, B. *Ancient History of Western Asia* etc. p. 97, fig. 46.
9. Hrozny—*op. cit.* p. 117, fig. 52.

that we can divide the pottery from Harappa found by Wheeler into three groups if we take into consideration only the ornamentation on pot-sherds. Pottery from mud brick fortification and rampart[1] for example, has much similar ornamentation than the pottery from the later make of the rampart[2], while the ornamentation on the pottery of pre-defence deposits[3] is the simplest of all.

The jewellery and the ornaments on the terracotta figurines from Mohenjodaro Culture of some of the phases are similar to those seen at Harappa as already noted before, but we notice here further developments also. At Mohenjodaro the shape of the composite bead pendants and the arrangement of beads in the necklace [pl. XXI (a)] are distinctly better than at Harappa. Similarly the gold conical cap shows a distinct improvement over the one of Harappa. The caps and clips of the Turquoise bead, which are of electrum lead us to the same conclusion. The fillets in the shape of V illustrated on figures (e), (f) plate XXV also a record a development in the form from those of Harappa [pl. VIII, fig. (o)]. These points should not be missed when hurdling together Mohenjodaro and Harappa Culture as one composite whole[4].

The Mohenjodaro Culture seems to have been influenced by neighbouring towns from where similar pieces of ornaments, mostly of the later phases[5] have been found and this must have come about when Mohenjodaro Culture was at its Zenith, and the decline had just begun, probably when the etched carnelian beads decorated with seven compartments[6] were being manufactured. For it is along with these that we find their imitations[7], a fact which at

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1. Wheeler—Harappa, *Ancient India No.* 3 (1947) pl. XLI.
2. *Ibid*—pl. XLIII, XLIV.
3. *Ibid*—pl. XL.
4. Childe, G —*A New Light on the Most Ancient East p. 173*; Piggott—*Pre-Historic India* p. 171-4.
5. Ghosh—*Indian Archeology* 1956-57, pl; XV–C; A–4 – Recent Excavations at Lothal by S. Rao have yielded tiny gold and steatite beads, a gold capped green stone bead and etched carnelian beads.
6. Marshall—*M. I. C.* CXLVI–43; Mackay—*F. E M.* pl. CXXXV–3; Mackay—Further Links between Ancient Sind Sumer, and Elsewhere *Antiquity* Vol. V, p. 459-473, pl. 146, fig. 3.
7. Mackay—*F. E. M.* pl. CXXXVI–59, 61; CXXXIX–98.

once points to the approach of decadance. These beads were found from the upper levels of Mohenjodaro which is another pointer to this fact. Similar beads are reported to have been found at Ur, Kish, Tell Asmar, Shah Tepe Hissar etc., as already pointed out. On the evidence of the beads Mackay suggests that Mohenjodaro Culture can hardly be dated later than 2750 B. C[1]. Childe is of the opinion that the Indus seals from a post Akkadien context in Mesopotamia imply a persistence of the Harappan Civilization down to 2000 B. C.[2]. This date fits in with the date of the earthquake proposed by Schaeffer[3] which made people leave their homes and seek shelter in distant lands. Thus we can safely assume that Mohenjodaro Civilization wich may have been at its highest near about 2000 B. C. decayed and was obliterated by the invaders in the years following the earthquake. Presuming the extinction of this culture near about 1900 B. C., it will be necessary to set aside a reasonable period for its development which should not be less than 200 years. Apart from Jhukar Culture, we can thus divide Mohenjodaro Culture also into these phases, the first, which corresponds with Harappa, the second which marks further development, and the third, which records the downfall before its complete annihilation by the Jhunkar people. For no culture can be completely superimposed by another unless it has already decayed from within. The first phase of Mohenjodaro Culture is represented by solid copper beads [pl. XXVIII] fig. (g); terminals of copper, fig, (z-11); spacers of thin sheets of bronze, fig. (z-18); carnelian cylindrical barrel-shaped beads, fig. (z-9), steatite round and barrel-shaped beads[4], faience cylindrical beads[5]; gold round beads [pl. XXVIII, figure (a) already described; copper cones[6]; gold fillet, pl. XXV, fig. (a); finger-rings of copper[7]; bangles of copper wire[8] etc. The second phase is represented by the gold cone; V shaped fillets, [pl. XXV fig. (e), (f), (g)]; silver fillet [pl. XXVI fig. (a)], hair-pin with animal heads

1. Mackay—Further Links, *Antiquity*, Vol V p 459.
2. Childe—*New Light on the Most Ancient East* p 186
3. Schaeffer Claude—*Stratigraphie Comparee* etc., p. 545.
4. Mackay—*F. E. M.* p. 495.
5. Marshall—*M. I C.* pl. CLII-15 f.
6. Mackay—*op. cit.* pl. CV-22; CXXIV-30.
7. Mackay—*op. cit.* pl. CXXXVI-87.
8. Marshall—*M. I. C.* pl. CLII-4, 5, 6.

[pl. XXVII fig. (u), (x) etc.]; gold ear-studs [pl. XXIII, figure (i)]; bangles of thin sheets of gold [pl. XX fig. (e) and (d)]; faience bangles with deep semāted edges [pl, XXVII, fig, (r)]; tubular fluted beads of steatite [pl. XXVIII fig. (z-5)]; the jadite beads of barrel shape[1]; the onyx bead[2]; the etched carnelian bead with eye design [pl. XXVIII, fig. (b)]; gold beads discoid double convex like the ones in the necklace on [pl. XXI] fig. (a) etc. To third phase belong the ear drop of bronze [pl. XXVII, fig. (c)] copper beads with traces of gold[3]; segmented faience beads [pl. XXVIII, fig. (z-2)] imitations of carnelian beads[4]; carnelian beads with seven compartments [pl, XXVII, fig. (t)] carved steatite beads [pl. XXVIII fig. (x)]; silver ring with crosses and semi-crosses [pl. XXI, fig. (b)] etc.

When we examine the jewellery of other sites of Mohenjodaro level, we come across similar phases for example, we find at Chanhudaro a carnelian bead with the usual seven compartments, but in form it is six-sided [pl. XXXVIII, figure (n)] unlike the four-sided bead recovered from Mohenjodaro already referred to above. Those beads [Pl. XXXVIII, (n), (o), (p), (q), (r) etc.] are of the last phase of the development of Mohenjodaro Culture, for all possible pattern seems to have been utilised in decorating them. To this period belong also, perhaps, the carved steatite beads and some of the faience amulets[5]. Some of the spacers of necklace with a circular decoration round the holes [pl. XXXVIII, fig. (m)] terminals, fig. (l), and pendants of Chanhudaro, fig. (x) and (x-1) [pl. XXXVIII] belong to the second phase of Mohenjodaro Culture. To the third phase belong the bangles of copper or bronze sheetings V shaped[6], the ivory pin [pl. XXXVIII-(b)]; the ear pendants [pl. XXXVIII, fig. (g), (i)]; the amulet on fig. (e), the small shell beads[7] etc. Similarly the pieces of ornaments from Karchat[8] on an examinations seem to belong to the first two phases of Mohenjodaro Culture. The

1. Mackay—*F. E. M.* pl. CXXXV-9
2. *Ibid*—pl. CXXXVI-68.
3. *Ibid*—pl. 501.
4. *Ibid*—pl. CXI-29; CXXXIX-73.
5. Mackay—*Chanudaro Excavations* pl. LXXXIII-49-51; XLIX-2, 4, 5.
6. *Ibid*—p. 190, pl. LXXIII-30 etc.
7. *Ibid*—pl. LXXXVI-1-6.
8. Majumdar—*Arch. Surv. of India Memiors 48* pg. 131.

cylindrical beads of lapis lazuli, and chalcedony, the copper pin, the terracotta bangle fragments etc. seem to belong the first period, while the thin discoid beads of steatite, the terracotta bangle fragments with a row of dots in chocolate belong to the second phase. The jewellery pieces from Lakhiyo appear to to belong to the second phase[1]. The beads from Karchat[2] of green felspar and chalcedony seem to be of the first phase of Mohenjodaro Culture. The pieces of ornaments found at Lohumjodaro can be placed among the last two phases of Mohenjodaro Culture. The carnelian beads of short barrel type, the flat felspar beads, the green stone beads of short barrel type, the various paste beads, the various paste bangle fragments etc. belong to the second[3], while the shank shell bangle fragments, the copper beads, the copper ring, the bit of copper overlaid with gold, the paste bangle fragments etc. belong to the third phase. Of special significance is the bit of copper[4] overlaid with gold which was perhaps manufactured when people were becoming poor and the decline of culture had set in. The figurines from Mohenjodaro are of several types; some of them definitely point to the presence of foreigners, for example, figures (j), (r), [pl. XXX] with tall caps. The figurines, (b), (g), (f), [pl. XXIX] seem to belong to the first phase while figurines (a), (e), (e), (d), (j) [pl. XXIX] and (k), (o), (n) [pl. XXX] seem to belong to the second; the third is represented by figurines (f) [pl. XXIX] and (a), (b), (c), (d), (e) [pl. XXX]. The successive developments of various ornaments have already been discussed before.

Of the Jhukar Culture which, perhaps, was built on the rings of Mohenjodaro Culture, we have the beads of faience recovered from Chanhudaro [pl. XLII-A fig (u), (v), (w), (x), (y), & (z)]; the Jhukar hair-pins [pl. XLII, fig. (m), (n) and (o)]; the faience bead cone coated with glaze; amulets[5] of pottery and faience, [pl. XLII, fig. (a) - (j)]; buttons, fig. (k), (l); bracelets fig. (d); and rings[6]. Of special interest are the

1. Majumdar—*Arch. Surv. of India Memoirs 48* p. 77-78.

2. *Ibid*—p. 72.

3. *Ibid*—p. 55.

4. *Ibid*—Lh. 20, pl. XXXIII-24.

5. Mackay—*Chanhudaro Excavations* pl. L-1, 3, 4, 7 etc.

6. *Ibid*—pl. LXXIII-9, 12.

amulets bearing sun motif[1]. Similar are some of the ornaments from the upper levels of Lohumjodaro[2] and the terracotta cone, the ivory pin, etc. from Jhukar[3]; the ornaments found at Chanhudaro by Majumdar[4] like the terracotta conical cap marked with chocolate bands, the ivory cone, the terracotta bangle fragments' the terracotta incised beads etc. The ornaments found at Shahi Tump[5] like the beads of stone, the copper disc pendants [pl. XXXIX, fig. (u), (y), (z-3), (z-4) etc.] also appear to belong to Jhukar Culture as the designs on them are like those on some of the amulets of Chanhudaro. These ornaments have little affinity with those of Mohenjodaro Culture and it appears that they belong to a new people who came to this area.

The dress and ornaments of these new-comers can be seen on the clay figurines of Chanhudaro, especially on figurines (j), (k) [pl. XL]. The measurements of skull of a man found buried at Shah Tump show traces of mixed origin[6]. The terracotta figurines also disclose features very unlike those we come across at Harappa and Mohenjodaro. The probable date when these people came to India may have been sometimes after the earthquake as suggested before. The newly arrived people appear to have super-imposed their mode of living with their fire-places, stamp-seals, amulets, beads, metal tools, pins and pottery heads etc.,[7] and yet we find contacts with the old world in the decoration of their pottery[8]. At cemetry H, the same situation is noticeable[9]. The amulet with interlaced coiled pattern, [pl. XLII,] fig. (h) has a parallel in Hittite Civilization[10]; the amulet with angles on [pl. XLII], fig. (j) resembles the one[11] from Susa (d), the long barrel-

1. *Ibid*—p. 142, pl. XLXIX-5 etc.
2. Majumdar—*Arch. Surv. of India Memoirs 48* p. 55.
3. *Ibid*—p. 12, 13.
4. *Ibid*—p. 41.
5. Sir Aurel Stein—*Arch. Surv. of India Memoirs 43* p. 96.
6. Piggott—*Pre-historic India* p. 220.
7. Mackay—Great New Discoveries of Ancient Indian Culture, *I. L. N.* No. 21, 1936, P. 908-911.
8. *Ibid*—pp. 222-224, fig. 27.
9. Wheeler—Harappa, *Ancient India No. 3* p. 81, 82.
10. Piggott—*Pre-historic India* p. 225.
11. Childe—*A New Light on the Most Ancient East* p. 141.

shaped faience beads from Jhukar levels of Chanhudaro with those of Jemdet Nesr period of Sumer, the ornamented bead from Lahumjodaro[1] have their parallel in Hissar III. C and Anau III[2]; the coiled copper rings of the Chanhudaro variety already referred to have been found at Hissar III level[3]. All these facts lead us to presume that the newly arrived people came from the west bringing with them some of their ornaments which may have been later copied in the new environment by local craftsmen as generally happens. In Mesopotamia a similar situation is visible after the death of Naram-Sin, on, of Sargon.

Another wave of immigrants seems to have followed these people not very long after. They seem to have domesticated the horse for riding as well as charioteering. We have a pot-sherd from Londo not far from Nal ornamented with a frieze of horses which apparently belongs to these new people. Unfortunately we do not get very many pieces of ornaments of these people of the Jhangar Culture except a few beads [pl. XLII-A (z-2), (z-3), (z-4) and pl. XLII-(d)], and pieces of coiled pottery bangle [pl. XLII (p)]. These people who introduced incised grey pottery seem to have moved to the east following the Jhukar[4] people. Grey or dark grey incised ware has also been found at Digi-ji-Takri[5]. Similar pot-sherd fragments have been found at Jhangar associated with pottery sherds which Piggott ascribes to Sung period[6] but which may be painted grey found at Rupar below the N. B. P. and above the Harappa ware[7]. The grey of this painted grey ware is however, different; it is lighter in colour. If, therefore, the incised ware has any inffinity with the pottery of other cultures it is with the grey pottery of Larsa[8], which is perhaps of an earlier period than this ware.

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1. Majumdar—*Arch. Surv. of India Mamoirs 48* p. 58, pl. XXXIII–23.
2. Piggott—*op. cit.* p. 225.
3. Schmdit—*Hissar*—p. 1:0, H. 4263.
4. Piggott—*Pre-historic India* p. 240.
5. Vats.—*Arch. Surv. of India Report* (1935-36), p. 35, 37.
6. Piggott—*op. cit.* p. 227.
7. Sharma, Y. D.—Exploration of Historical Sites—*Ancient India No. I 9* p. 125, fig. 4.
8. British Museum—No. 128513.

We thus see that a stylistic study of the development of designs and ornamentation of jewellery helps us to gather workable date for determining a possible sequence of different sites in the Indus Civilization in relations to those of Sumer, Iran, Mesopotamia, Egypt, Crete, and elsewhere[1]. Such an examination also points out and brings into relief the commercial and other contacts with the outside world, sometimes peaceful and sometimes violent. If at Ur there is evidence of contacts with the Indus Civilization[2], the amulets, seals, etched carnelian beads and several other pieces of jewellery of Harappa, Mohenjodaro and Chanhudaro show clear contacts with Anau, Hissar, Kish[3], Tell Asmar, Khafajeh,[4] Egypt,[5] and Crete[6] as we have mentioned in the foregoing pages. The ideograph attached to this chapter gives a tentative suggestion of the dates of various cultures of the Indus Civilization as compared to those of the West. In the absence of radio carban tests and clear stratigraphic evidences of different levels of other sites, these figures are at best only tentative. Thus we conclude that the Indus jewellery though it was essentially Indian in its origin, fabric and ornamentation was nevertheless influenced from time to time in its successive developments by outside contacts initiated primarily by a merchant community travelling from one centre to another, selling and purchasing goods, and incidently also by immigrants.

If the study of the fabric in the structure of jewellery provides us with an evidence of the advanced chemical and manufacturing knowledge possessed by the craftsmen of the Indus Valley, their motive and decorations reveal how the various ideas spread

1. Childe—Indus and the West before Darious—*Antiquity* Vol. XIII, (1939), p. 5.
2. Piggott—*Pre-historic India* p. 209.
3. Mackay—Further Links between Ancient Sind, Sumer and Else- *Antiquity* Vol. V, p. 459–473.
4. Frankfort—The Indus Civilization and the Near East. *Ann. Bib, of Ind. Arch.* Vol. VII (1932), p. 1–9.
5. Childe—*New Light on the Most Ancient East* p 238.
6. Stone, J. F. S.—*Antiquity* Vol. XXIII–(1949), p. 201–205, compares the faience beads from Harappa with those of Crete spectographically, Seal amulets with similar artistic motive have been found in Crete and Harappa; Piccard—*Revue Archaeologique*—Tome, XII–Juillet – December 1938, p. 13 etc.

from one place to another. The evolution of designs and ornamentation of jewellery of the successive cultures thus become an effective method of checking camparative stratigraphy.

The magicians, the wisemen, the astrologers, the seers of the ages gone by, found much in the matter of gems and ornaments. With them each gem and each ornament possessed certain planetary attraction peculiar to itself, certain affinities with various virtues and a radical concordance with the seasons of the year and the stars influencing ones nativity. A study of ornaments as we have seen provides us with evidence of how these thoughts develcped and influenced the peoples of the different regions and the possibilitv of dating the other pieces in the context of jewellery.

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APPENDICES

Nāgarī Letters With Their Roman Equivalents

Nagari		Roman
अ	=	a
आ	=	ā
इ	=	i
ई	=	ī
उ	=	u
ऊ	=	ū
ए	=	e
ऐ	=	ai
ओ	=	o
औ	=	ou
अं	=	aṅ
अः	=	aḥ
ऋ	=	ṛ
ॠ	=	rī
ऌ	=	lṛ
ॡ	=	lrī
क	=	ka
ख	=	kha
ग	=	ga
घ	=	gha
ङ	=	na
च	=	ca
छ	=	cha
ज	=	ja
झ	=	jha
ञ	=	ñ
ट	=	ṭa
ठ	=	ṭha
ड	=	ḍa
ढ	=	ḍha
ण	=	ṇa
त	=	ta
थ	=	tha
द	=	da
ध	=	dha
न	=	na
प	=	pa
फ	=	pha
ब	=	ba
भ	=	bha
म	=	ma
य	=	ya
र	=	ra
ल	=	la
व	=	va
श	=	śa
ष	=	sa
स	=	sa
ह	=	ha
ह्	=	ḥ
क्ष	=	Kṣa
त्र	=	tra
ज्ञ	=	gña

List of name of ornaments in various ancient texts

(No name of nose ornament is found in these)

APPENDIX I

Some Names of Ornaments & Jewellery in Ṛgveda

(According to Vedic Index by Kieth and Macdonell)

General Terms for Ornamentation and Ornaments :-

Araṅkrtā (later Alaṅkrta - ra substituted by - La. Pāṇini) R. V. I, 2, 1 ; VIII, 67, 3.

Bhūsita — R. V. VIII, 90, 1.

Hiranyaih — R. V I., 122, 2, II, 33, 9 etc. (wearing ornaments of gold) Vedic Index II, 505.

Vibhrata (wearing Jewels) - R V. V. - 75, 3

Citra — (ornaments)R. V. I., 17, 7 , I, 37, 3 ; I, 66, I; VIII, 101, 13.

Svarna Citra — (gold ornaments) IV, 23, 6. *Anūka* - (ornaments) R. V. V, 33, 9 (Vedic Index Vol. I, p 58 M. w. p. 141.

General Terms for Precious Stones & Metal -

Hiranya (gold) — R. V. I, 36, 4 ; I, 43, 5, I, 122, 14 ; I, 180; IV - 10. 6 ; VII - 90, 6; IX - 107, 4 , X - 184, 3 etc. In plural Hiranya denotes gold ornaments - V. I. Vol. II, p. 55.

Svarṇa (gold) R. V. VII - 90, 6 ; IV, 23, 6 etc.

Rajata (silver) — R. V. VIII, 25, 22.

Ratna — R V. I, 20, 7 ; I, 35, 8; I, 41, 6, II, 38, I; V. 75, 3 ; IX- 107, 4 etc. (Jewels also Ratnam - V - 75, 3).

Kṛśana — (pearl) R. V. 35, 4 ; I, 26, 4 ; VII, 18, 23.

Precious Material :-

Hasti (ivory) — R. V. I, 64, 7 ; IV, 16, 4.

Head Ornaments :-

Sraj (garland for the head) — R. V. IV - 38, 6 ; V, 53, 4 ; VIII - 47, 15 ; X - 184, 3.

Puṣkara Sraj — (lotus garland) R. V. X - 184, 3, 2.

Stūpa (a cone like ornament of the head) R. V. I, 24, 7 ; VII - 2, 1.

Kurīra (a fan lik (?) ornament of the head derived from kuri, a blade of standing grass M. W. p. 239 head ornament for women) R. V. - X 85, 8.

Opaśa (encircles like opaśa and fillet encircles the head ; head ornament for women)— R. V. I, 73, 6; VIII, 14, 5 ; IX, 71, 1 ; X, 85, 8.

Śiprā (a head ornament or a crown for men M. W. p. 1006) – R. V. V., 54, 11. VIII, 7, 25 (Śiprā Śirsasu R. V. – V, 54, 11).

Hiraṇya Biprā (gold crown) — R. V. II, 54, 3.

Hari Śiprā (gold crown) — R. V. X, 96, 4, Vedic Index II, 380 also Hiri sipra – R. V. II 2, 5; VI, 25, 9.

Śṛṅga (Indra described as śṛṅga vrso head ornaments VIII, 17, 13) — R V. I, 140, 6; I, 163, 11; II, 39, 3; III, 8, 10, VIII, 17, 3.

Ear Ornaments :-

Karna Śobhana (ear top) — R. V. VIII, 78, 3.

Hiranya Karṇa (Kuṇḍala) -- R V. I, 122, 14

Cakra — R. V. X – 85, 11, 12 ; X – 85, 20 (śrotram te cakre (plural) – ear tops perhaps decorated with the design of eye or āmalaka (a fruit) aksa Āhataḥ) R. V. X – 85, 12 the form may have been taken from the wheel – an important invention of the period Suvṛtam sucakram – (perfectly round nice wheel-like eartops) – R. V. X, 85, 20.

Neck Ornaments :-

Malā (from which the Hindi word in mālā or the sanskrit word mālya seems to have been derived–garland) — R. V. X – 136, 2.

Niṣka (necklace composed of pieces of silver or gold Niṣka grīvo R. V. V, 9, 3) R. V. I, 126, 2 , II, 33. 10, V – 9, 3; VIII, 47, 15.

Rukma (Rukma Vakṣaso K. V II, 34 2; II, 34, 8 etc. a breast plate) – R. V. I, 166, 10 ; IV, 10, 5 , V, 56, 1 , V, 53, 4 , X, 78, 2.

Atkān — R. V. V. 55, 6 (hiranyayān atkān-mantles adorned with gold – Vedic Index Vol. II. p. 291 The word might have denoted long belt of gold passing over the shoulder across the chest like yagñopavita).

General Name for Head :-

Manā — VIII – 78, 2 (Sacā manā hiraṇyā – large beads of gold).

Maṇi — R. V. I, 122, 14 (maṇi grīvā – R. V. I, 122, 14).

Hiraṇya Maṇi (Hiranyena manina – gold beads) — R. V. I, 33, 8.

Arms and Wrist Ornaments :-

Bhujī (armlet) — R. V. VIII, 8, 2 (Bhuji hiranya peśasa – *Bhuja* decorated with gold wire, Hindi word *Bhuja*).

Khādi (bangles for the wrists m. w. p. 275) — R. V. I – 168, 3. also khādi hasta R. V. V, 58, 2 V. I. Vol. I, p. 216.

Vṛsa Khādi — R. V. I. 64, 10 (Hiraṇya Khadī - Śāṅkhāyana Śrauta Sūtra III, 5, 12, VIII, 23, 6, gold bangles).

Finger Ring :-

Hiranya Pānı (gold on the finger, finger ring) — I, 22, 5; I, 35, 9.

Girdles :—

Nyocanı (a gırdle M. W. p. 573) R. V. X - 85, 6. Vedıc Index II, 195 - Thongs).

Varuna Pāsa (a girdle of Mūñja) — R. V. VI; 74, 4, VII, 88, 7, X, 85, 24.

Hıranya Vartanı (a gırdle of gold) — R. V. V - 75, 2, 3; VIII, 8, 1.

Raśanā (gırdle) — R V. X, 136, 2.

Anklets :-

Patsu Khadī — R. V V - 54, 11 (Khadı - bangles. *patsu khadayo* - bangles of the feet.

Craftsmen :—

Dhamātr (smelter; the person who melts metal-Vedıc Index I,p. 405) R V. V - 9, 5.

Su Karmāṇah (goldsmith) — R. V. IV - 2, 17.

Karmāra — (smıth) R. V. X - 72, 2.

Manufacturing Process :-

Hıranya Peśasa (gold thread work) -- R V. VIII, 8, 2.

Jaritū ratnınım — R. V. I, 182, 4.

R. V. = Rıg Veda.

V. I. = Vedic Index - A. A. Marcdonell & A. B. Keıth.

M. W. = Monıer Wıllıams - A Sanskrıt Englısh Dıctionary.

APPENDIX II

Some Names of Ornaments and Jewellery in Other Samhitas.

General Terms for Ornamentation :-

Svalaṅkrta (self ornamented) — A. V. X, 1, 25.

Dhātā (wearing ornaments) — A. V. VIII, 5, 18.

Hiranyaih (gold ornaments - Vedic Index Vol. II, p. 505) - A. V. IV, 10, 6 Vājsaneyi Saṁhitā XV, 50 ; XX, 37.

Precious Metals :—

Hiranya (gold) — Vājsaneyi Saṁhitā XXXIV - 50-52 ; A. V. V, 4, 5 ; V, 28, 6 ; VI, 38, 2 , VI, 67, 1, XI, 2, 12 etc. Kāṭhaka Saṁhitā - XXXV-15

Harita (gold) — A. V. V, 28, 5 , V, 28, 9 ; XI, 3, 8 Kāthaka Samhitā - VIII, 5.

Suvarṇa (gold - Vedic Index Vol. II, p. 459) — A. V. XV, 1, 2.

Rajata (Silver) — Vajsaneyi Saṁhitā XXIII, 37 Taittirīya Saṁhitā I. 5, 1, 2 A. V. V, 28, 1, XIII, 4, 51 Kāṭhaka Saṁhitā - X, 4.

Loha — (Vedic Index Vol. II, p. 197) Vajasaneyi Saṁhitā XXIII-13 Taittirīya Saṁhitā IV, 7, 5, 1 (Bronze - Vedic Index - II, p. 234 Loha mani - Chāndogya Upanisad - VI, 2, 5).

Ratna — A. V. V, 1, 7 , VII, 14, 4.

Hasti (Ivory) - A. V. III, 22, 1-6 ; IV, 36, 9 ; VI, 38, 2 ; VI, 70, 20.

Śaṅkha (kṛasanah-pearl-shell Vedic Index Vol. I, 181, it is described as *Samudrajaḥ* A. V IV, 10, 4) — A. V. IV, 10, 1 ; 2, 3; 4, 5.

Head Ornaments :-

Sṛṅga (a crown with horns) — A. V. IX, 4, 17 ; XIX, 36, 2 ; etc. (Hiraṇya Srnga - A. V. XIX, 36, 5).

Stūpa (cone-like head ornament) (Vedic Index II, 483) — Taittiriya Saṁhitā III, 3, 6, 5 ; (Stūpa Vajsaneyi Saṁhitā II, 2 ; XXV, 2).

Kumba (a round crown for men) — A. V. VI, 138, 3 ; (Vedic Index Vol. I, p. 163 perhaps the word kubbhā is derived from kumba).

Tiriṭa — (tiara) Saṁhitā .A. V. VIII, 6, 7 (Vedic Index Vol. I. p. 311).

Kurira (a fan like Kirita ; uvatta. says - kuriro mukuṭaḥ) —Vājasaneyi Samhita XI-56 ; Maitrāyani Samhitā - II, 7, 5 ; A. V. 138, 3.
Opaśa (fillet especially of women) —A. V. VI, 138, 1 ; 2 ; IX, 3, 8 Saṁhitā.
Svaupaśā — Vājasaneyi Samhita - XI-56. Taittirīya Saṁhitā IV, 1, 5, 3 Maitrāyaṇi Saṁhitā II, 7, 5.
Sraj (garland of flowers) — A. V. I, 14, 1 ; X, 6, 4.
Hiranya Srag (garland of gold) — A. V. X, 6, 4 .

Ear Ornaments .-
Pravarta (rings with overlapping ends for the ears) — A. V. XV, 2, 1 (Vedic Index Vol. II, p. 40).
Prāvepa (ear tops) — Maitrāyani Saṁhitā - IV, 4, 8 (Vedic Index Vol. II, p. 51).

Neck Ornaments :-
Niska (Necklace of round pieces of metal holed and threaded) — A. V. V, 14, 3 ; VII, 99, 1 ; XX, 131, 8.
Rukma (pendant of a necklace ; rukma urvayā - uvatta says - Yajamane kanthe rukmam prati muncanti) Taittirīya Saṁhita II, 3, 2, 3 ; V, 1, 10, 3 ; Vājsaneyi Saṁhita XIII-40 ; A. V. XIV, 2, 30.

Bead :-
Mani — Vājasaneyi Samhita - XXX-7 ; Taittiriya Saṁhitā - VII, 3, 4, 1. Kāṭhaka Saṁhitā XXXV, 15; A. V. I, 29, 1, II, 4, 1, II; 4, 2, VIII, 5, I etc.
Hiranya Mani (gold bead) — Kāṭhaka Saṁhitā - XXXV-15 ; Taittirīya - VII, 3, 4, 1. A. V. X, 6, 4.
Srāktya Maṇi (bead of clerodendrum plomoides bearing concentric circle design and biconical in shape, prativartaḥ pratisaraḥ) A. V. VIII - 5, 4.
Srnjaya Maṇi (round bead) — A. V. VIII, 5, 16.
Deva Mani (Triangular bead) — A. V. VIII, 5, 20.
Darbha Mani (long gold bead - A. V. XIX, 30, 5) — A. V. XIX, 28, 1 (R. V. I, 191, 3, Vedic Index Vol. I, p. 340 grass like).
Audambara Maṇi (bead of the fieus glomirata) — A. V. XIX, 31, 1 Taittiriya Saṁhitā II, 1, 1, 6.
Jangiḍa Maṇi (bead of Sandal wood - uvatta - 2, 117) A. V. II, 4, 1-6 : XIX, 34, 1.
Varṇa Maṇi (bead of cratava Roxburghii) — A. V. X, 3, 1 ; 3.

Khadira Maṇi (bead of acacia catechu)—X, 6, 6 ; 7 (Śāṅkhāyana Āraṇyaka XII, 8 ; Vedic Index Vol. I p. 213-14).
Yava Maṇi (biconical bead ?) — A. V. IX, 2, 13.
Parṇa Maṁi (bead in the form of a wing of a bird, Parṇa - wing Vedic Index Vol. I, p. 500. R. V. I, 116, 15) — A. V . III, 5, 4 ; 8.
Añjana Mani (bead of some black stone ?) — A. V. IV, 9, 3.
Pratisāra Mani (a bead with a design of overlapping circles ?) — A. V. VI, 138, 3 , VIII, 5, 1.
Śaṅkha Maṇi (bead of Śaṅkha, Vedic Index Vol. I, p. 181) — A. V. IV, 10, 1 ; 2 ; 3 ; 4 ; 5.

Arm & Wrist Ornaments :-

Parihasta (a gold bracelet or Hindi pahuñci) — A. V. VI, 81, 1 ; 2 ; 3.
Hiranya Bāhū (armlet of gold-hindi bazu) — Vatasaneyi-XVI-17.
Pratisara (a band with overlapping ends) — A. V. II, 11, 2 ; IV, 40, 1 ; VIII, 5, 1, 4.
Hasti (Ivory bangle - Kauśika Sūtra - 2, 4) — A. V. III, 22, 1.

Finger Ring :—

Hiraṇya (Gold finger ring also A. V. II, 36, 7.
Hiranya Pāṇi — Vājasaneyi - 22, 10.

Girdle :-

Varuṇa Paśa (the bridegroom addressing the bride uses this word Probably for her girdle A. V. XIV, 1, 19) — A. V. IV, 16, 6 ; XIV, 1, 19 ; Taittirīya Saṁhitā II, 2, 5, 1.
Rāsanā (according to uvatta - Rāsanā = Raśanā ; Vedic Index Vol. II, p. 233) — Vājasaneyi Saṁhitā I, 30 ; XI, 59 ; XXXVIII, 1 Taittirīya Saṁhitā I, 1, 2, 2 ; IV, 1, 5, 4 Kāṭhaka Saṁhitā I, 2 ; XVI, 5 ; XIX, 6 etc.).
Nināh —(a girdle ?) A. V. XIX, 57, 4 (Vedic Index Vol. I p. 456).
Mekhalā — A. V. VI, 133, 1 ; 2, 3, 45. Taittirīya Saṁhitā I, 3, 3, 5; VI, 2, 2, 7, Kāṭhaka Saṁhitā XXIII, 4 ; XXIV, 9 ; Maitrāyani Saṁhitā, III, 6, 7 (Vedic Index Vol. II p. 17).
Nyocani — A. V. XIV, 1, 7.

The Craftsmen :-

Hiraṇya Kāra (Goldsmith) — Vājasaneyi Saṁhitā - XXX-17.
Karmāra (Smith) — Vājaseneyi Saṁhitā XXX-7.
Maṇi Kāra (bead maker) — Vājasaneyi Saṁhiṭa - XXX-7.

Rajju Sarja (threader of beads) — Vājasaneyi Samhita - XXX - 7 (defined as rope maker VI Vol II p 199.)
Vaṇija (the trader for weighment - tulāyai) —Vājasaneyi Saṁhitā - XXX - 17.

The Thread :-

Śanaśca (of hemp, Hindi - sana) — A. V. II, 4, 5.
(*A. V.* = Atharva Veda)

APPENDIX III

Some Names of Ornaments & Jewellery in Brahmanas

General Terms for Ornaments :-

Sambhāra — Śatapatha II, 1, 1, 3.

Bandha (ornaments which are bound to the body) — Śatapatha 7, 1, 7. Taittirīya Br. III, 8, 9, 4 : V. I- - II, 59.

Precious Metals :-

Hiraṇya (gold) — Aitareya - II, 15 Taittirīya Br - I. 3, 7, 7 ; I, 4, 7, 4 ; III, 8, 2, 2. Ṣaḍavimśa - II, 9, 3. Śatapatha - II, 1, 1, 5 ; III, 1, 5, 20 ; 6, 2, 9 ; V, 1, 5, 28 ; III, 2, 4, 9 ; XI, 1, 1, 5 ; III, 3, 2, 2.

Jātarupa (gold Vedic Index I, 281) — Aitareya VIII-13

Suvarṇa (gold) — Śatapatha - XI, 4, 1, 8 ; Taittirīya Br. I, 4, 7, 4 ; I, 8, 9, 1 ; III, 12, 6, 6.

Rajata (silver) — Śatapatha XII, 4, 4, 7 ; 8, 3, 11 , XIII, 4, 2 ; 10 etc. Aitareya Br. VII, 12, 2. Taittirīya Br. II, 2, 9, 7 Pañca Vimśa Br. XVII, 1, 14. Ṣadavimśa Br. VI, 6.

Loha — Śatapatha Br. XIII, 2, 2, 18. Jaiminīya Upaniṣada Br. IV, 1, 4 (Bronze - Vedic Index II, 234).

Precious Stones :-

Ratna — Śatapatha - V, 3, 1, 1.

Muktā (pearl) — Aitareya Br. I, 14.

Vimuktā (good Pearl - Vedic Index II, 304) — Ṣaḍavimśa Br. V, 6.

Vajra (diamond) — Ṣadvimśa - V, 6 Aitareya Br VI, 24, 1.

Vaiḍūrya (catseye) (in Adbhuta Brahmana ; Weber - Indische Studien I, 40 ; Vedic Index II, 328) — Ṣaḍvimśa - V-6.

Head Ornaments :-

Stūpa (cone like head ornament) (Vedic Index II, 483) — Pañca vimśa Br. XIII, 4, 4 ; (Stūpa Śatapatha - I, 3, 3, 5 ; III, 5, 3),

Sruga (crown with horns) —Aitareya Br. VI - 18.

Opaśa — Tāṇḍya Mahā. Br. IV, 1, 1. Pañca Vimśa - XIII, 4, 3.

Sraj (garland) ŚataPatha V, 4, 5, 22 ; XIII, 5, 4, 2 ; Tāṇḍya Mahā Br. VIII, 9, 8 Pañcavimśa Br. XVI, 4, 1, XVIII, 3, 2.

Puṣkara Sraj (flower garland) — Taṇḍya Mahā Br. VIII, 9, 6 ; Taittirīya Br. I. 8, 2, 23.

Hiraṇya Mayīngu Sraja — Śatapatha V, 4, 5, 22.

Ear Ornaments :-

Prākāśa (a round ear top Hiraṇya mayau Prākāśa - gold ear tops Vedic Index II, 40) — Śatapatha V, 4, 5, 22 Tāṇḍya Mahā Br.- XVIII, 9, 10 Taittirīya Br. I, 8, 2, 3.

Pravartya (ear ring) (Vedic Index II, 40) — Śatapatha III, 5, 3, 16.

Neck Ornaments :-

Mālya (garland) — Pañcaviṁśa XIII, 4, 11.

Niṣka (gold)—Śatapatha XI, 4, 1, 8; XIII, 4, 1, 7; 11 Ait. Br. VIII, 22.

Rajata Niṣka — Pañcaviṁśa - XVII, 1, 14.

Rukma (a round disc. with 21 knobs śatapatha - VII, 4, 1, 10) — Śatapatha III, 5, 1, 20 ; V, 1, 21 ; V, 4, 1, 13 Taittiriya Br 1, 8, 2; I 8. 9 , Aitareya Br. VIII, 21, 4.

Rukma Pāśa — Śatapatha - VI, 7, 1, 7 ; 7, 1, 27 ; VII, 2, 1, 11.

Bead :-

Nikta (bead) — Śatapatha XIII, 2, 6, 8.

Maṇi — Aitareya Br. IV, 6 ; Pañcavimśa Br. XX, 16, 9 (Maṇi could be strung to a thread Pañcavimśa Br. XX, 16, 6 Jaiminīya Upaniṣada Br. 1, 18, 8 ; III, 4, 13 Jaiminiya Br. II, 248 ; Śatapatha - XII, 3, 4, 2.

Amulets :-

Hiraṇyakaksa śakuna — Śatapatha - IX, 4, 4, 5 (eagle - Agni is described as eagle with golden wings amulets of this shape vere perhaps being used - Śatapatha X, 5, 2, 10 Maitrāyaṇī Samhita. III, 14, 11).

Hiraṇya mamṛtamagniṅgu puruṣa (gold man)—Śatapatha VII, 4, 1, 15.

Arms and Wrist Ornaments :-

Pratisara (a band with overlapping ends) — Ṣatapatha - V, 2, 4, 20 ; Vedic Index II, 32).

Khādi — Śatapatha III, 6, 1, 7 ; Aitareya Br. III, 5.

Vala (wrist ornament) — Aitareya Br. VI ; (probably the word valaya of later sanskrit is derived from vāla).

Finger Rings :-

Hiraṇya (finger riug) — Śatapatha III, 3, 2, 2.

Girdles :—

Rāsnā — Śatapatha - VI, 2, 2, 25 ; V, 2, 11 ; 15.

Rāsnāva (girdled) — Śatapatha - IV, 1, 5, 19 (Vedic Index Vol. II, p. 223.

Craftsmen :-

Maṇikāra (the bead maker) — Taittiriya Saṁhita Br. III, 4, 3, 1.

Hiraṇya Kāra (goldsmith) — Taittiriya Br. III, 4, 14, 1.

Vaṇija — Taittirīya Br. III, 4, 14, 1.

APPENDIX IV

Names of Ornaments & Jewellery in Panini

(Reference from Dr. Vasudeva Sarana Agrawala – Paṇini Kālīna Bhāratavarṣa – Benares – Sam. 2012)

General Terms for Ornamentation & Ornaments :-

Āchādana — V, 4, 6.

Alaṅkaraṇa — III, 2, 56.

Āḍhyāṅkaraṇa — III, 2, 56.

Subhaṅgakarana -- III, 2, 56.

Alaṅkāra — IV, 3, 64.

Gold :-

Jātarūpa — IV, 3, 153.

Hiraṇya — IV, 3, 153.

Silver :—

Rajata — IV, 3, 138.

Names of Precious Stones :-

Lohitānmaṇi (red garnet) — V, 4, 30.

Sasya — V, 2, 68 (green Jasper).

Viḍūraññah (perhaps Vaidūrya) – IV, 3, 84.

Head Ornaments :-

Kumbā (a cone-like head ornament like Kubbhā) — III, 3, 105.

Srag (garland of flowers for the head) (Sragvi = one who wears the Sraga) V-2, 121

Lalāṭikā (a kind of benā) — IV, 3, 65.

Ear Ornaments :-

Karnikā — IV, 3, 65.

Neck Ornaments :-

Graiveyaka (a torque or Hindi tauka) — IV, 3, 62.

Māla (garland of flowers) (mālā bhārini) — VI, 3, 65.

Niṣka (a necklace of gold coins) — V, 1, 20.

Finger Rings :-

Aṅguliya — IV, 3, 62.

Goldsmith :-

Ākarṣika — V, 2, 64.

Process of Manufacture :-

Nisastapatāvanasevane (the goldsmith places the gold once on fire) VIII, 3, 102.

APPENDIX V

Some Names of Ornaments & Jewellery in the works of Asvaghosa.

(*References taken from Johnston's Saundrānanda, Johnston's Buddha Carita and Prof. Luders H. Bristicke buddhisticher Dramen, Berlin, 1911. S. N. = Saundrānanda ; B. C. = Buddha Carita S. P. P. = Sāriputra Prakaraṇa*).

General Terms for Ornaments :-

Alaṅkṛta (beJewelled) —B. C. III, 53 ; VI, 59, VIII, 6 ; S. N. I-30, VIII, 34, X, 30.

Svalaṅkṛta (naturally bejewelled or self ornamented) B. C. III, 53 ; S. N. X, 30 ; S. P. P. - 68, 7.

Bhūsita (wearing ornaments) — B. C. V, 81.

Vibhūsita (wearing fine ornaments) -- B C. II, 4, X, 2 ; S. N-IV, 2.

Pratimanda (encircled with ornaments) — S. N. VI, 31.

(Hema) Bhāṇḍama (ornaments of the horse also ornaments in general) B. C. V, 3-

Alankara (ornaments)— B. C. VI-59 ; S. N. XV, 59.

Ābharaṇa — S. N. IV-31 ; VIII-59.

Bharnāni (ornaments) — B. C. V-64 ; S. N. X-23.

Bhūsaṇa (ornaments) — B. C. II-22 ; IV-70 ; IV-101 ; V-51 ; VI-12 ; VIII-3 ; VIII-28 , VIII-36 ; S, N. IV-12 ; VI-18 ; VI-27, 28, 32 ; XI-35.

Vibhūsaṇa (fine ornaments) — B. C. III-14 ; III-17 ; V-58 ; V-60 ; S. N. IV-27 ; VI-32, XI-35.

Nirbhūṣana (without ornaments) — S. N. IV-36 ; VI-28.

Chitra (oraaments perhaps studded with variously coloured stones - B. C. II-22 ; V-44, 48 ; VI-57 ; X-40 ; XI-59 ; XIII-21. S. N. IV-31 ; VIII-59 ; IX-25 ; X-9, 19, 29, 37 ; XI-48. S. P. P. 82, 65, 42.

Names of Gold :-

Cāmikara (gold) — B. C. II-22, 30 ; S. N. X-9 ; XVIII-64.

Hāṭaka (gold) — B. C. V-51.

Hema (gold) — B. C. V-3, 72 ; XXIII-8 ; S. N. III-25 ; VII-9 ; XVIII-20.

Ḥiraṇya (gold) — B. C. II-32 ; III-8 ; VIII-58 ; XI-13.

Kāncana (gold) — B. C. I-17 ; II-2 ; V-26 ; V-42 ; VI-56 ; VI-59 ; VIII-24 ; S. N. X-5 ; XIII-4 (Kancana Padma Hasta - B. C. I-17).

Mahārha (gold) — B. C. I-86 ; II-21.

Kanaka (gold) — B. C. I-17 ; IV-34 ; V-44, 81 ; VIII-53 ; XI-15 ; S. N. III-24 ; X-4 ; XV-68 ; XVIII-5.

Tapaniya (gold with special reference to its unchangable colour when heated) — B. C. V-5? ; S. N. VIII-50.

Rukma (gold) (unlike the vedic meaning of the word here it means gold Perhaps the Hindi word rakama is derived from Rukma) — B. C. V-3, V-48 ; S. N. VI-29, VI-31.

Suvarna (Gold with special reference to its beautiful colour) —B.C. IV-35 , V-55 , VIII-77 , X, 40, XX-3, XXI-48 ; S. N. I-19, III-6, IV-18, X-22, XV-65, 66, 69 ; XVI-66, 80

Name of Silver :-

Rūpya — B. C. II-22 ; S. N. X-29.

Name of Copper :-

Tāmra — B. C. VIII-22.

General Terms for Precious Stones :-

Ratna (Jewels) — B. C. II-21 ; VIII-38 ; IX-43 , S. N. XV-25, 27 ; XVI-98 ; XVIII-46.

General Name for Beads of Precious Stones :-

Mani (Beads of precious stones) — B C. I-86 ; IV-14 ; V-53 ; VI-50, X-40 ; S. N. III-25, IV-18 , VIII-50 , X-3 , X-23, 25 , XV-12 , XVIII-46.

Names of Precious Stones —

Muktā (Pearl) — B. C. VI-13 ; S. N VIII-50.

Nila (Saphire) — S. N X-30 ; XVIII-2.

Padmarāga (Topaz) — S. N VI-26 ; S. P. P. p. 79-52 b 1.

Vajra (Diamond) — B. C V-44 ; S N. VI-31 , X-24.

Vaidurya (Cats eye) — B. C. I-17 , V 9 ; S. N. VI-31 , X-24, 29, 30 , XVII-1.

Sphaṭika (Rock crystal) — S. N. X-28.

Śaṅkh (Chauk) — B. C. XII-11,

Dviradara (Ivory) — B. C. I-86.

Head Ornaments :-

Mauli (a diadem covered with precious stones - B. C. X-40 and a thing to be bound to the head like a turban B. C. VIII-52)—B.C. VIII-52 , IX-19 , X-40 ; S. N. VIII-59,

Mukuṭa (Crown) — B. C. VI-13, 57, VIII-48 ; S. N. VII-51.
Opaśa (Fillet) — S. P. P. p. 86-97-b 1.
Sraja (Garland of flowers for the head) — B. C, IV-101, V-60, VIII-83, XIII-21 ; S. N. IV-26, 31, VI-26, VIII-50, 59, X-20, XI-52.

Ear Ornaments :-
Karṇotpala (Ear drop in the form of leaves) — S. N. IV-16.
Kuṇḍala (Ear drop, studded with jewels - S. N. X-23 moving S. N. X-38) — B. C. II-7, III-18, 19, 21, V-41, 53, VIII-21 ; S. N. IV-19, 23, VI-2, X-20, 23, 38.
Maṇi Kundala — B. C. V-53.

Neck Ornaments :-
Kanṭha Sūtra (Choker) — B. C. V-58.
Kanṭha Vithika — S. P. P. p. 79-53-a-1.
Suvarna Sūtra — B. C. V, 56.
Hāra (Long necklace) — B. C. II, 29, V, 52, VIII, 22, IX, 19 ; S. N. I, 12, IV, 19, V, 20, VI, 3, 5, 25, X, 23, X, 37.
Hāra Yasṭi — S. N. IV, 19, VI, 25.
Vilamba Hāra (very long necklace) — B. C. V, 52 ; S. N. VI, 32.
Viṣikta Hāra (Necklace of large pearls) — B. C. IX, 19.
Yoktra Hāra (Rope-like necklace) — B. C, VIII, 22 ; S. N. VI, 3.
Hara Maninā (Necklace of precious beads) — S. N. X, 23.
Ratnāvali (Necklace of precious stones) — B. C. II, 21.
Mālya (Garland of flowers) — B. C.VIII, 9, IV, 40, VIII, 14, XII, 110 ; S. N. I, 43, V, 20, VI, 34, X, 20 ; S. P. P. p. 88-III-a-1.

Necklace Pendant :-
Kāsā — S. N. VI, 5, X, 38.

Arm Ornaments :-
Bhuja Pāśa (arm band khown as bhuja banda in Hindi) — V, 52, 56.
Keyūra (-armlet with a central large piece) — B. C. IX, 19, X, 40 ; S. N. X, 8, X, 23.
Suvarṇa Keyūra (Gold armlet) — B. C. X, 40.
Māyūra Keyura (an armlet with the central piece in the form of a peacock) — S. N. X, 8.

Arm Ornaments :-
Aṅgada (armbangle) — S. N. X, 9.
Rukmāṅgada (Gold armlet) — S. N. XVII, 71.

Camīkara Bhakti citram rupyāṅgada — S. N. X, 9 (an armlet of silver inlaid with gold).

Wrist Ornaments :-

Valaya (bangle) — B. C. V, 81 ; S. N. III, 25.

Kanak Valaya (Gold wrist bangle) — B. C. V, 81.

Girdles :-

Mekhalā (a kind of girdle) B. C. VIII, 22.

Raśanā (a kind of girdle) — B. C. IV, 33.

Kāñcī (a girdle with bells attached to it) — B. C. III, 15 , IV, 34.

Kanaka Kāñci (Gold girdle) — B. C. IV, 34.

Foot Ornaments :-

Kinkiṇi (Foot ornament with small bells attached) — B. C. V, 3.

Nūpura (anklets which make sound B. C. III, 15, etc.) — B. C. III, 15 , VIII, 22 ; S. N. IV, 17 , 43¾, VI, 8 , VII, 30 , X, 23.

Yoktra Nūpura (rope like anklet) — S. N. IV, 17.

Cala Nūpura (Tremelous anklets) — S. N. VII, 30.

The Jeweller :-

Ratna Kārmetya — S. N. XVII, 46.

The Goldsmith :-

Suvarnakāra — S. N. XVI, 65

Suvarṇa Karmāra — S. N. XVI, 69.

The Forge for Melting Gold :-

Ulkā (the forge) — S. N. XVI, 65.

The Bellows for Blowing the Fire -

Dhamati — S. N. XVI, 65.

Process of Manufacturing Gold Ornaments :-

(*a*) Ulkā Mukhastham hi yathā suvarnam Suvarṇakāro dhamatih - (compares the goldsmith who placing gold in the mouth of the forge applies the bellows ...... Jhonston - S. N. p. 95).

(*b*) Daheta suvarnam hi dhamannakāle jale ksipans samayeda (by using the bellows at the wrong time he would burn the gold, by throwing it into the water at the wrong time he would make it too soft. - S. N. XVI, 66)

(*c*) Yathāca vacchandā dupanayati karmāśraya sukham suvarṇam Karmāro bahuvidham alankara vidhiṣu- S. N. XV, 69. (as the goldsmith at his will reduces the gold in many

way so as to be easy to work in the various kinds of ornaments ...... Johnston Saundriananda - p. 87).

(*d*) Tato yathāsthūla nivarhaṇena suvarṇa doṣa ivate praheyāh - S. N. XVI, 80 (they must be eliminated like the impurities of gold by driving them out in the order of grossness ...... Jhonston - Saundriananda p. 97.)

(*e*) Suvarna hetorapi pāns.ıdhāvako vihāya pānsūnvṛhato yatha - S. N. X V, 66, 29. (just as a man who washes dirt to obtain gold first eliminates the grosser pieces of dirt and then the finer ...... Johnston - Samdrānanda p. 86.

APPENDIX VI

Some Name of Ornaments & Jewelry in Bharata Natya Sastra

(References from Sri Bharata Muni pranıtam Nāṭya Śāstram, Kāshi Sanskrit Series 60, Vidyā vılās Press, Benares)

General terms of Ornaments :-

Alaṅkāra—XXIII-10, 123.

Ābharaṇa—XXIII-10.

Maṇḍana—XXIII-57.

Bhūṣan—XXIII-13, 15, 16, 17, 18, 19, 20, 26, 57.

Vibhūṣaṇa—XXIII-18, 32, 33, 34, 35, 36, 39.

Bhāṇḍa—XXIII-119.

Śṛṅgāra—XXIII-110.

Āvedhyam (alaṅkāra)—XXIII-12 (to be worn in the holes like earings).

Bhandhaniyam (alaṅkāra) (ornaments which are bound like Bracelets)—XXIII-12.

Prakṣepya (Alaṅkāra) (those ornaments that are held on the different parts of the body due to their formation like bangles)—XXIII-12.

Āropya (alankara) (which can be dangled on the body like necklaces)—XXIII-14.

Names of Gold :-

Kāñcana—II-54.

Hema—XXIII-14.

Suvarṇa—XXIII-44, 48.

Tapanıya—XXIII-90.

Kanaka—II-52, XXIII-95.

Name of Silver :—

Rajata—II-53.

Name of Copper :-

Tāmra—XXIII-202, 210.

General Name for Precious Stones :-

Ratna—II-55, XXIII-26, 31, 32, 39, 45, 48, 54.

Markata (emerald)—XXIII-57.

Indra Nila (saphire blue)—XXIII-59.

Puṣparāga (Topaz)—XXIII-61.

Vaiḍūrya (Catseye)—XXIII-60, 61.

Aśmarāga (ruby-padmarāga)—XXIII-30.
Padma Mani (Ruby)—XXIII-58.
Māṇikya (Ruby)—XXIII-204.
Muktā (pearls) —XXIII-16, 20, 29 38, 44, 53, 55, 56, 60.
Yaṣṭi (Beads or pearls)—XXIII-37.
Beads of precious stones :-
Maṇi—XXIII-34, 44, 55.

Ornaments for Men

Head Ornaments .-

Mukuṭa (crown) Nānā ratna graticchannā bahurūp śobhitāḥ—XXIII-185, Suvarna ratnaistu mukuṭā—XXIII-207.)-XXIII-16, 136, 140, 185, 207.
Keśa Mukuta—(like Jatā mdkuṭa crown of hair) XXIII-135, 137.
Mauli—(diadem) XXIII-133 Sirsa Mauli—XXIII-133, see sūcilomo yaktro and others of Bhārhut).
Kiriṭa—(tiara) XXXII-133.
Cūḍāmani (Cūḍāmaṇi sa mukuṭah, see supāvaso yakho)—XXIII-16
Asmarāga (ruby:padmarāgi)—XXIII-30.
Padma Maṇi (Ruby)—XXIII-58.
Mānikya (Ruby)—XXIII-204.
Muktā (pearls)—XXIII-16, 20, 29, 38, 44, 53, 55, 56, 60.
Yaṣṭi (Beads or pearls) - XXIII-37.
Beads of precious Stone :-
Maṇi—XXIII-34, 44, 55.

Ornaments for Men

Head Ornaments :-

Mukuṭa (crown)—Nānā ratna graticchannā bahurūpa śobhitāḥ, XXIII-185, Suvarṇa rathaistu mukutā-XXIII-207-XXIII - 16, 136, 140, 185, 207.
Keśa Mukuṭa (like Jatā mukuṭa a crown of hair)—XXIII-135, 137.
Mauli (diadem)—XXIII-133.
Śirṣa Mauli—XXIII-133, see sūcilomo yakho of Bhārhut and others.
Kiriṭa (tiara)—XXXII-133.
Cūḍāmaṇi (Cūḍāmaṇi sa mukuṭaḥ, see supāvaso yakho)—XXIII-16.
General term for Ear Ornaments :-
Karṇābharaṇa (ear drops)—II-52 (See kuvera yaksa of Bhārhut).
Kuṇḍala (round ring for men)—XXIII - 16 (coomaraswamy-La Sculpture de Bhāhut. pl. XXXV-fig. 101 on the ears of the lotus eater).

Mocaka (ear ornament for men)—XXIII-16.
Kila (ear pin stud for men)—XXIII-16.
Śroni sūtra (gold thread to hold the ear ornament)—XXIII-13.

Neck Ornament :-

Harṣaka (necklace for men)—XXIII-17.
Sat sūtra (necklace of hundred metal wires twisted one over other) —XXIII-17.
Mālā (garland)—XIII-10.
Mālya (garland of flowers)—XXIII - 20 (five varieties-veṣṭita, Vitata, Saṅghātya, Granthim, pralambita-XXIII-10, 114).
Trrasa (necklace of three strings)—XXIII-19.
Hāra—XXIII-19.
Muktāvali (pearl necklace of one string)—XXIII-17.
Muktika Hāra—XXIII-20 (Pearl necklace of three varieties :-
(a) consisting of 32 pearls,
(b) consisting of 64 pearls,
(c) consisting of 108 pearls first two for men, the last for gods)
Vyālamba Hāra—XXIII-20.

Armets :-

Keyūra (armlet with a central piece)—XXIII-19 (see Kubera Yaksa of Bhārhut).
Aṅgada (modern anānta armlet with overlapping ends)—XXIII-19.

Wrist Ornaments :-

Valaya (bangle) XXIII-18.
Rucik (wristlet) XXIII-18.
Citika (wristlet) XXIII-18.
Hastavi (bracelet) XXIII-18.

Finger Ornament :

Kataka—XXIII-17.
Aṅguli (finger ring)—XXIII-17 (see the right hand small finger of Kubera Yaksa-Bhārhut).
Mudrā (finger ring with a bazel top)—XXIII-17.

Girdles .-

Tarala (a loose girdle) XXIII-20.
Sūtraka (girdle string for men)—XXIII-20.

Ornaments for Women

Head Ornaments :-

Kumbhi Padaka—XXIII-67.
Cūdāmaṇirmakarikā—XXIII-22.

Śirṣa Jāla—XXIII-23.
Muktā Jāla—XXIII (see culakokoka devta Bharhut).
Gavākṣaka—XXIII-22.
Veṇikañja—XXIII-23 (or women see candra yaksı-Bharhut & Yaksi before the elephant-Zimmer-pl. 13).
Śikhā Pāśa (for women)—XXIII-22.
Śikhā Jāla—XXIII-22.
Śıkhi Pātra—XXIII-23.
Piṇḍa Pātra—XXIII-22.

Fore Head Ornaments :-
Varta Lalāṭikā—XXIII-67 (round bena seen on the head of culakoka Devta-Bharhut).
Lalāṭa Tılaka (Hindi Tıkulı seems to have been derived from this word)—XXIII-24 (Nāhā śılpa prayojıtāh).
Guccha—XXIII-24 (bhrū kaksoparı guchasca Kusumānukṛtir bhaveta) (in Amarakośa is described as a pearl necklace of 24 strings of pearls-Amarakoṣa II 104-106. Batanmārā Yakṣi-Bhārhut).

Ear Ornaments :-
Kuṇḍala (round earıng)—XXIII-23.
Karṇakā (flower lıke ear pendants)—XXIII-25.
Karṇa Valaya (earıng)—XXIII-25.
Patra Karnikā (leaf like ear pendant)—XXIII 25.
Karṇa Mudrā (round ear tops)—XXIII-25.
Karnotkilaka (a damrū shaped ornament)—XXIII-25.
Karṇapūra (round ear tops - Hındı karn phool)—XXIII-26.

Neck Ornaments :-
Trıveṇı (of three strings)—XXIII-27.
Muktāvali (pearl necklace of one lıne)—XXIII-33.
Vyāla paṅktır mañjari (pieces in the form of serpants)—XXIII-31.
Ratna Mālikā (neclace of beads of precious stones)—XXIII-31.
Ratnāvali (nıclear of beads of precious stones of one string)—-XXIII-33.
Sūtra (choker)—XXIII-33.
Śṛṅkhalikā (a necklace with beads arranged in order of their size, beginning with small ones and also endıng with small ones)-XXIII-33.
Hāra (necklace for women)—XXIII-33.

Breast Ornament :-
Maṇi Jāla (net of precious stone beads)—XXIII-34.

Arm Ornaments :-
Aṅgada (armlet with overlapping ends)—XXIII-34.

Wrist Ornaments :-
Valaya (bangles)—XXIII-34.
Barjura (bracelets)—XXIII-35.
Svecchitika (a kind of bracelet)—XXXIII-35.

Ornaments of the Hand :-
Kala śākhā (on the back of the hands)—XXIII-35.
Hasta Patra (an ornament like pacāṅglā)—XXIII-35.
Supūraka—XXIII-35.

Finger Rings :-
Kaṭaka (round ring)—XXIII-35.
Mudrā (ring with bazal top)—XXIII-36.
Aṅguliya (aṅguśtari in persian, aṅguthi in Hindi is derived from this word)—XXIII-36.

Zone Ornaments :-
Patra rekhā (strings falling vertically)—XXIII-27.

Girdles :-
Kāñci (one string of beads or pearls)—XXIII-36.
Mauktika Jāla (set of pearls)—XXIII-36.
Kulaka—XXIII-36.
Mekhalā (a girdle with eight strings of beabs)—XXIII-36, 37.
Raśanā (a girdle of sixteen strings)—XXIII-36.
Kalāpa (a girdle of 25 strings)—XXIII-36.

Foot Finger Ornaments :-
Tilaka (toe rihg)—XXIII-40.

Thigh Ornaments :-
Pāda patra (ornaments in the form of leaf)—XXIII-40.

Foot Ornaments :-
Nūpura (foot anklet)—XXIII-39.
Kinkiṇi (anklet with bells attached to it)—XXIII-39.
Ratna Jālaka (anklet composed of a net of beads)—XXIII-39.
(Pāda) Kaṭaka (rings)—XXIII-39 (Sughoṣa Kaṭaka-the ring which produces agreeable sound) see Kaṭaka on the feet of Cullakoka Devtā.
Aṅguliya (simple rings for the finger of the feet)—XXIII-41.

APPENDIX VII

Some names of Ornaments & Jewellery in the works of

KĀLI DĀSA

(References from Kāli Dāsa Granthāvalī - Ed. Sitaram Chaturvedı - Akhil Bhartıya Vikrama Pariṣad, Sam. 2007 Second Edition, Benares and also from India in Kalidasa by B. S. Upadhya p. 202 ft.).

General terms for Ornaments :-

Bhusaṇa (ornaments)—Ritu I-12, III-7, 18; IV-4; Raghu XVI-86, XVIII-45, XIX-45, 50; Ku-V-48, VII-94 Megha Uttara-12.

Vibhuṣaṇa (beautıful ornament)—Raghu-XVI-80, Ku-II-39.

Ābharaṇa—Ritu. I-4, II-12 ; Māl. V-7 ; Raghu XIV-54, XVI-74, VII-9, XIII-21, IX-40, XVI-41, 86, XVII-25, Ku III-53, VII-21, 34 ; Megha Uttara - 35, Vıkram II - 3 ; Sakuntala - III-24 IV-5.

Kanakābharaṇa —Raghu IX-40, Śākuntala III-24, IV-5.

Divyābharaṇa—Raghu X-11.

Jaitrābharana—Raghu XVI-72.

Alankāra (ornaments)—Māl. p. 92 ; Raghu-XV-55.

General terms for Ornaments :-

Cıtra (ornaments wıth varıous coloured stones on them)—Ku-VII-10, XII-20.

Bhāṇḍam (Manju seva ratna Bhaṇḍama)— Māl. IV - Vidusaka. Kālıdāsa Gr. p. 325.

Maṇḍana (ornaments)—Ku 1 - 4 Megha Uttara 11 (India in Kālidāsa. by B. S. Upadhyaya p. 202).

Vibhūṣita—Ritu IV-7.

Bhūṣita—Ritu II-5, III-21.

Alaṅkṛta (ornamented)—Māl. 1-14 ; Vikrama-III-12, 34 D. O,

General name of Beads :-

Maṇi—Ku XII-5 ; Vikrama V-2 ; Raghu VI-49 ; X-75 ; XI-9 ; XII-65 ; XVIII-42 ; Māl V-18 ; Vıkram & Kālıdāsa Gr. p. 239.

Maṇi (Jewel from a serpents head)—Raghu XI-59, Ku II-38.

Maṇi (Jewel from Mountains)—Ku VI-38, VII-12, Megha Uttara-1, 6, Kitu 1-2.

Maṇi Yaṣṭi—Vikram III-40.

General terms for Precious Stones .-

Katna (Gems)—Megha Purva-15, Mal. V-18, Raghu. VI-79 ; VII-28, XII-64, XVII-63 ; Megha Uttara 7 ; Śākuntala I-26 ; Rıtu VI-8 ; Ku 1-2, 3, 24 ; II-37, VI - 6, VII - 34 ; XI - 11 ; XII-8. 9.

Ratnākare Yujyata eva Ratnam Ku XII-11 Sarpasyeva sıro ratnam —Raghu XVII-63.

Vaiḍūrya (cats eye)—Ku VII-10, XIII-30, Megha Uttara 16, Ritu II-5.

Nila Māṇikya (saphıre)—Ku XII-14, Megha Uttara - 17.

Nila (saphire)—Raghu XIII-54.

Mahā Nila (big saphıre)—Raghu XVIII-42.

Pravāla (coral)—Rıtu VI-17, 19 ; Raghu VI-12, Ku 1-44, III-39.

Vidruma (coral) Raghu XIII-13, Ku 1-44, Megha Pūrva-34, Rıtu VI-18, 31.

Māṇikya (ruby)—Ku XII-20, 26.

Padmarāga (topaz)—XVII-23

Marakata (emerald)—Megha Pūrva-34, Megha Uttara-16, Rıtu-III-21.

Kuliśa (diamond)—Megha Pūrva-65.

Vibhranmaṇı (chalcedony)—Vıkram V-2.

Saṅga Maṇi (crystal)—Vikram-IV Kalıdasa Gıanth. p. 237.

Candra Kānta Maṇi (white saphire)—Megha Uttara-9.

Sphaṭika (rock crystal)—Raghu XIII-69. (sphatıkaksa maldka-Ku V-63) Sphaṭıka Harmesu-Ku VI-42) Ku IX - 39, 40, 41, 43 ; XI-30, 32 ; XII-21 ; XIII-39, XIV-5.

Sita Maṇi (rock crystal)—Megha Uttara 5.

Muktā—Raghu XIII-54, XVII-23, 25 ; XIX-45 (pearl) 1-6, 42, 45, VII-10, IX-43 ; XI-46 ; Vıkram V-19.

Yaṣṭi (pearl)—Raghu XIII-54.

Sūrya Kānta (its property to burn wood) (a kind of ruby-garnet) Raghu XI-21.

Lohitārka Maṇi (garnet)—VIII-75.

Nikaṣa (Testing stone)—Raghu XVII - 46, Megha Pūrva - 41 ; Vikrama IV-7 (Nikaṣe hema rekheva Raghu-XVII-46).

Gajadanta (Ivory)—Raghu XVII-21.

Śankha—Raghu XIII-13, 64 ; Megha Pūrva-34.

Names for gold :-

Kāñcana (gold)—Raghu VI-79, XVI 70, Ku XI-32, XII-20, Ritu I V-4 (Kancana Kumbha Raghu XIII-7) Kāncana Toraṇa-Ku XI-32.

Hiraṇya (gold) (hiranya Ketasā-Raghu XVII-26)—Ku X - 28, XIII-39.

Cāmikara (gold)—Vik. I-15 ; Ku XII - 27 ; XIII - 39 ; Raghu XVIII-40.

Suvarana (gold)—K XII-5.

Mahārha (gold)—Ku V-12 ; XII-20.

Kanaka (gold)—Ku VII-49, Megha Pūrva-41 ; Megha Uttara-62; Ritu VI-30 ; Vikrama IV-7.

Jāta Rūpa (gold with special reference to its unchanged colour)- Māl. V-18.

Tapaniya (gold with special reference to its unchanged colour when treated)—Raghu XVIII-41 ; Ku VIII-34.

Hema (gold)—Cu II-44, Megha Uttara-16.

Hema Pātra—Raghu X-51.

Hema Pakṣa—Raghu X-61.

Hemāmbuja—Raghu XIII-60.

Hema Kumbh—Raghu XVII-10.

Hema Valkala—Ku VI-6.

Hema Bhitta—Ku XIII-41.

Name of Silver -

Rajata (silver)—Ritu III-4.

Name of Copper :—

Tāmra (copper) Ritu V-13 ; VI-17, 18, 33.

Head Ornaments :-

Mukuṭa (crown)—Studded with ratna-Jewels-Raghu IX-13.

Mauli (diadem)—Ku IX-27 ; VII-94 ; Raghu VII-66 ; IX-20, 51, XVIII-38, 41.

Mauli Maṇi (the gem of the diadem)—Raghu XIII-59 (Muktā guṇonnadha maulim-Raghū XVII-23).

Śirasā Vestana (turban)—Raghu VIII-12.

Cudāmaṇi (big Jewel for the hair)—Vik p. 122 ; Raghu XVII-28 ; Ku VII-35 ; IX-44 ; Ku II-34.

Chudā Ratna (Jewel for the hair)—Ku XVII-55.

Ratna Jāla (set of beads of precious stone)—Ku XIII-41.

Sirastra Jāla (soldiers headdress)—Raghu VII-62.

Muktā Jāla (net of pearls)—Ku VII-89 ; Megha Pūrva-67 ; Megha Uttara-12. 38.

Kiriṭa (tiara for men)—Raghu VI-9, X-75, Ku XII-29, VII-29, XIII-31.

Sraja (garland of flowers for men's head-Raghu XVII-23)—Ku IX-21, Raghu XIX-25, 27, VI-80, VIII-34, 36, XVII-23, 25, Ritu V-5 ; Śākuntala VII-24.

Ear Ornaments :-

Karṇa Bhuṣana—Raghu V-65.

Karṇa Pūra (round ear tops)—Raghu VII-27, Ritu II-25.

Karṇikār (flower like pendant of the ear)—Ritu VI-6.

Kanaka Kamailaih Karṇa (lotus like ear pendant of gold)—Megha Uttara-11.

Kuṇḍala (ear ring)—Raghu X-51. Ritu II-20, III-19.

Cancala Kuṇḍala (tremelous ear ring)—Raghu XI-15.

Kāñcana Kuṇḍala (ear ring of gold)—Ritu III-19.

Maṇi Kuṇḍala (ear rings with beads)—Ritu II-20.

Karnotpala (ear drops in the form of leaves or leaves like those of ketaki worn in the ears) (a terracotta figurine of Laksmi from Kaushambi wears leaves in the ears Kuṣān-Ist Cent. A. D.)—Raghu VII-26 ; Ku V-47 ; Megha Pūrva-28.

Tātaṅka (ear top round like the wheel cakra with two pearls and an emerald)—Ku IX-23.

Neck Ornaments :-

Muktāvali (pearl necklace)—Raghu XIII-48.

Hāra (a long necklace)—Megha Pūrva-34 ; Megha Uttara-11, 30 ; Raghu V-70 , VI-16 ; XI-68 ; XVI-43, 62 ; Ritu I-4 ; IV-2 ; VI-3, 7, 26, 32 (Muktā Phala hāra Vallim) Ku IX-24.

Hāra Śekhara—Ritu I-6.

Candrānśu Hāra (a necklace of pieces in the form of half moon called Chandrahar in Hindi.

Hāra Yaṣṭi (pearl necklace)—Ritu I-8, II-26; Ku V-8, VIII-68.
Suddha Ekāvali (one line of beads)—Vikrama I Kalidasā Granthāvali p. 164 (also see Kauṭilya- ch. X-2 p. 77 Shamsāstri) Muktā guṇa suddhayopi - Raghu XVI-18.

Hema Sūtra (chain of gold with a pendant of precious stone)—Vik. V-2.

Kaṇṭha Sūtra (chain necklace)—Raghu XIX-32.
Sūtra (thin chain)—Megha Uttara-11.
Niṣka (Kaṇṭhe) (a necklace of round pieces of metal)—Ku II-49.
Tārā Hāra—Raghu V-52, Ku IX-43, Megha Pūrva-34 (Sthula Mukta hara-Mallinatha (a necklace of big pearls)—Ku IX-43.

Vaijantika (a necklace composed of a series of five gems, in each group five gems are in a particular order. G. Rao Hindu Iconography Vol. I part I p. 26 Vishnu Puran - Vishnu's necklace is of five formed points of five different kinds of gems, the pearl, ruby, emerald, blue stone and diamond)—Vik. I Kalidasa Granthavali p. 164.

Prālamba (long garland of flowers)—Raghu VI-14.
Mālya (some times worn in the bun Raghu VII-7)—Raghu VII-7, XIX-14, Ku VII-19.

Mālā (garland of flowers —Ritu II - 12, II - 21 (Kadamba nava kesara ketakibhirayojitā-garland made of kadamba flowers which have new kesara and ketaki flowers of the head) Māl p. 36, Raghu XIII-54.

Mālā (garland of bakula and matti flowers for the head) Ritu II-25) (Kusum Mālā—Ritu V-12) (Mandāra Malā—Śākuntala VII-2.

Arm Ornaments :-

Aṅgada (armlet)—Raghu VI-14. 53, 73 ; XVI-60 ; Ritu IV-3, VI-6 ; Vik. I-15 (Hema Aṅgada (gold armlet)—Ritu VI-53 Tapta Cāmikara Aṅgada - Vikrama I-15).

Keyūra (arm band)—Raghu VI-4, 86 ; VII-50 ; XVI - 56 ; Ku VII-67 (mayūra pṛṣṭhāśrayaṇā guhena-used to be bound to the arm - Raghu VI-4).

Wrist Ornaments :-

Valaya (bangles)—Raghu XVI-73, XIX-14 ; Rtu VI-7 ; Megha Pūrva-39 ; Ku II-64 ; Vikr. V-2 ; Māl. II-6 (bangles with ends in the form of serpants mouth).

Bhujaga Vala—Megha Pūrva 64.

Kanaka Valaya (gold bangles)—Megha Pūrva 2, 3 ; Śākuntala III-11.

Kāncana Valaya (gold bangles)—Śākuntala VI-6.

Kuliśa Valaya (bangles studded with diamond)—Megha Pūrva 65.

Mṛṇāla Valaya (bangles in the shape of lotus stem round)—Śākuntala III-7.

Kaṇṭaka (bracelets) (Kaṇṭakita prakosṭhai - Raghu VII - 22) - Kaghu VII-22.

Hasta Sūtra (marriage band)—Ku VIII-25.

Finger Ring :-

Mudra (a ring with a bezel top)—Śākuntala VI - Kālidāsa Gr. p. 112, Śākuntala I Kālidasa Gr. p. 22 ; Māl IV Kālidāsa Gr. p. 323.

Aṅgulīya—Raghu VI-18, XII-62 ; Nāga Mudrā sanātha anguliya (with snake and garuda designed on the bezel) - Māl. I kumudini Kālidāsa Gr. p. 263 ; Māl IV-Kālidāsa Gr. p. 320, 321 (with the name of the king on the bezel) - Śākuntala VI-12.

Ratnāgulīya (a finger ring studded with precious stones)—Raghu VI-18 Maṇibandhanotkīrpa nāmadheyam rājakigam aṅgulīyakam (finger ring with a bezel surrounded by jewels and bearing the name) Śākuntala VI-Raksiṇau - Kālidāsa Gr. p. 97.

Anguliyaka —Śāk. p. 49, 120, 146.

Aṅgulīyaka Mudrika—Māl Vidusaka - Kālidāsa Gr. p. 3 - 16.

Kaṭaka—Mal. II after 10 vidūṣaka - Kalidāsa Gr. p. 286 (B. N. S. 23-17).

Girdles :-

Mekhalā (a girdle of threaded beads - visūtra mekhalām - Ku VIII-89) Ritu I-4, 6 ; VI-4, Ku I-38, VIII-14, 26, 67, 81, 83, 89; Raghu VIII-64, XIX-17, 25, 26, 40, 45 ; Māl. III-20.

Puruṣāntra Mekhla (a kind of girdle)—Raghu XI-17.

Tapaniya Mekhalā (gold girdle)—Ku. VIII-81.

Hema Mekhalā (gold girdle)—Rtu I-6.

Kuśa Mekhalā (girdle made of kuśa grass)—Kaghu IX-21.
Maṇi Mekhalā (girdle composed of beads)—Raghu XIX-45 ; Ritu VI-5.

Mekhlā Madhya Maṇi (girdle with central bead)—Ku I-38.
Kāñci (a girdle with bells)—Ritu II-20, III-26, IV-4, VI-7 ; Raghu VI-43, Ku I-37 ; Māl III-21, Megha Pūlva-30.

Kanak Kāñci (gold girdle)—Ritu III-26.
Kāñcana Kāñci (gold girdle)—Ritu IV-4.
Hema Kāñci (gold girdle for women)—Raghu III-21, Māl III-21.
Kesara dama Kāñci (for women)—Ku III-55.
Raśanā—Ritu VI-26, III-2 ; Māl. p, 59,
maunji triguṇā rasanā (girdle made of three strings of mūñja grass) Ku V-10.

Hema Rasanā (gold girdle)—Ritu VI-26.
Kalāpa (girdle)—Ritu III-20.

Foot Ornament :-

Kiṅkiṇi (Kāñcana) a foot ornament with small bells attached to it Renou-Dict. Sans. Francars p. 193)—Raghu XIII-38.

Nūpura (anklet)—Raghu VIII-63, XIII-23, XVI-12, 56 ; Ku I-34, III-26 ; Ritu I-5, III-27 ; Vikr. III-35, IV-30.

Maṇi Nūpura (anklet composed of heads of precious stone beads) Ritu III-27.

Charṇālāṅkāra (top ring ?)—Vikrama - III Māl. Kālidāsa Gr. p. 296.

Various Designs on Jewellery :-

Mayūra pṛṣṭhāśrayiṇā guhena - Raghu VI-4 (armlet with the central pieces in the shape of a peacock).

Maṇiduṭṭimo (embeded with red jewels)—Raghu XI-9.
Kāñcana ratna citraia (jewels embedded in gold)—Ritu IV-4.
Vaidūrya śilā tale asminnābadha muktā phalabhakti citres (cats eye piece with pearls)—Ku VII-10.

Kāñcana pāda pitham mahārhamāṇiky a vibhaṅgi citram (on a gold plate rubies set in gold)—Ku XII-20.

Ratnāntre mauktika saṅga ramye - Ritu VI-8 (jewels alternated with pearls).

Maṇiriva kṛtrim rāga yogitaḥ (beads coloured artificially)—Vikrama II-21.

Jāta rūpeṇa kalyāṇi maṇiḥsaṁyoga marchati (Jewels embedded in gold) – Malvi V-18.

Nāgamudrā saṇāthama aṅguliakam (finger ring bearing a design of serpant and garuda ?)—Māl I – Kumundini, Kālidāsa Gr. p. 263 (also see Śākuntala NI-12.

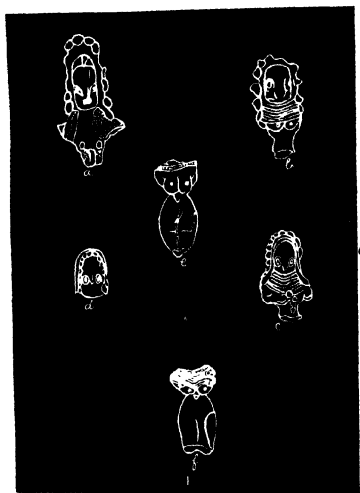
Maṇıbandhaṅu kkıṇṇāmaheelāakle aṅguliae – (finger ring studded wıth jewels and bearing the name of the kıng) – Śākuntala VI – Raksinath Kālıdāsa Gr. p. 97.

Clothes Studded with Jewels :-

Ratna granthı to uttariyam (scarf studded with jewels)--Raghu XVI-43.

Rıtu	=	Ritusaṁbāra.
Raghu	=	Raghuvaṁśam.
Ku	=	Kumarasambhavam.
Megha	=	Meghadūtam—Megha = uttara = uttara megha Megho—pūrva—pūrva megha.
Vıkram	=	Vikramorvaśıyam.
Śākuntala	=	Abhıgyāna śākūntalam.
Māl	=	Malvıkagnımıtram.

PLATES

PLATE I

Pl. I

Head and neck ornaments of the figurines Quetta Culture.

(a) Head ornaments on the terracotta figurine from Damb Sadat-Fairservis-*American Museum noviets no 1587*; p. 31.

(b) Head and neck ornaments on the terracotta figurine from Damb Sadat-Fairservis-*Ibid* ; p. 31.

(c) Head and neck ornaments on a figurine from Deh Morasi Fairservis-*Ibid;* p. 23.

(d) Head ornaments on a figurine from Deh Morasai Fair-servis-*Ibid ;* p. 23.

(e) Necklaces on terracotta figurines from Damb Sadat Fair-servis-*Ibid* ; p. 21.

(f) Ditto.

Pl. II

Pieces of ornaments of Amri Culture.

(a) Long barrel terracotta bead from Ghazishah N. G. Majumdar, Memoires 48 ; pl. XXXIII-47.

(b) Terracotta bangle fragment with strokes in chocolate from Ghazishah-N. G. Majumdar, *Ibid* ; pl. XXXIV-4.

(b[1]) Terracotta bangle fragment with strokes in chocolate from Amri-N. G. Majumdar-*Ibid* ; pl. XVII-12.

(c) A Copper bead from Ghazishah cylindrical-N. G. Majumdar-*Ibid* ; pl. XXXIII-34.

(d) A Silver ring from Ghazishah-N. G. Majumdar-*Ibid* ; pl. XXXIII-49.

(e) A Copper bangle from Ghazishah-N. G. Majumdar-*Ibid* ; pl. XLI-19 of Ghazishah.

(f) A terracotta bead with ribbed body of Ghazishah-Majumdar. *Ibid* ; pl. XXXIII-40.

(g) A copper bead from Ali Murad-Majumdar-*Ibid*; pl. XXXIII-58

(h) A copper ring from Ghazishah-Majumdar-*Ibid*; pl. XXXIII-48.

(i) A copper bangle fragment from Ghazishah-Majumdar. *Ibid* ; pl. XXXIII 50.

(j) A copper fillet from Ghazishah-N. G. Majumdar-*Ibid* ; pl. XLI-23.

(k) A terracotta biconical bead with incised strokes of Lohri-Majumdar-*Ibid* ; pl. XXXIII-82.

(l) A terracotta bead long barrel shaped of Lohri-Majumdar-*Ibid* ; pl. XXXIII-81.

(m) A terracotta fan like ornament from Lohri-Majumdar-*Ibid* ; pl. XXXIV-II.

(n) A terracotta tablet with bosses in relief from Pandi-Wahi-Majumdar. *Ibid* ; pl. XXXI-18.

(o) A terracotta bead with incised decoration from Amri-Majumdar-*Ibid* ; pl. XVII-13.

(p) A Copper ring from Dhal-Majumdar-*Ibid* ; pl. XXXIII-51.

(q) A Copper object, part of an ornament-Majumdar-*Ibid* ; 75 Lohri 176.

PLATE II

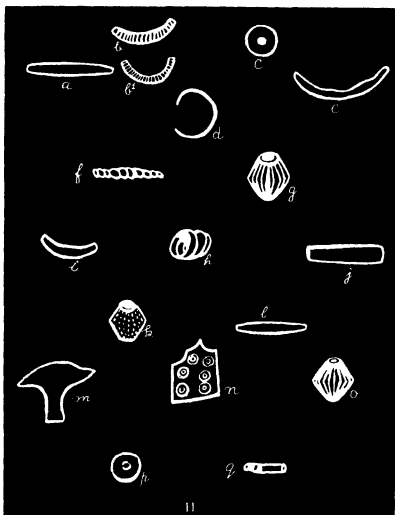
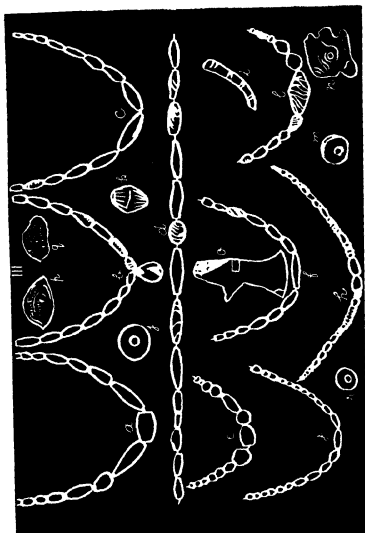



PLATE III

Pl. III

Pieces of jewellery from Nal

(a) Seventeen beads of a necklace, 12 of agate (10 barrel shaped and two irregular) 4 of carnelian, barrel shaped, and one of carnelian with one flat side barrel shaped. Hargreaves-*memoirs*, 35 ; pl. XV (a) (E14).

(b) Fourteen beads and a crystal shaped pendant of a necklace found in an infant's grave ; 10 barrel shaped beads . of agate white with grey ends, 2 biconical of agate, 1 small barrel shaped agate and one bihexagonal carnelian-Hargreaves-*Ibid* ; (E12).

(c) Fifteen carnelian beads of a necklace-12 biconical and three bi-hexagonal-Hargreaves-*Ibid* ; (G8).

(d) Fifteen beads of a necklace with a central bead of limestone barrel shaped, three of carnelian ten of agate and one of stone unpolished, all biconical in shape-Hargreaves *Ibid* (A 2).

(e) Fourteen beads of a necklace-6 of carnelian, six of paste of which two have green glaze and 2 are of agate flat irregular hexagonal-Hargreaves *Ibid* ; (A4).

(f) Thirteen pale banded agate beads of a necklace biconical in shape and graduated-Hargreaves-*Ibid* (A1).

(g) Twenty six graduated biconical and barrel shaped beads of agate of a necklace-Hargreaves-*Ibid* ; (G7).

(h) Sixty lapis lazuli beads of a necklace of which 59 are cylindrical and discoid beads while one is a part of a hexagonal bead-Hargreaves-*Ibid* ; (G11).

(i) Silver foil part of a fillet with floutings en repousse-Hargreaves *Memoirs* 35 ; p. 40–20.

(j) A small oval shell bead-Hargreaves-*Ibid* ; p. 43 (F15).

(k) A marble barrel shaped bead-Hargreaves-*Ibid* ; p. 43 (F15).

(l) Seventeen beads of a necklace-7 small flat carnelian 3 of lapis lazuli, irregular hexagonal, 7 of agate, flat hexagonal Hargreaves-*Ibid* ; pl. XV (a) (G9).

(m) A marble ring stone-Hargreaves-*Ibid* ; p. 41. no. 47.

(n) A Copper pendant with depression in the middle and six flat projection-Hargreaves-*Ibid* ; pl. XV (9d).

(o) A terracotta figurine from Nal-Hargreaves-*Ibid* ; pl. XXI 19.

(p) (q) Two sealings from a seal found at Nal. looking very much like two ear tops. Hargreaves-*Ibid* ; pl. XV (f) seal and one sealing.

(r) A shall bead round in shape from Nal Hargreaves-*Ibid*; p. 43.

Pl. IV

Head and foot ornaments on the figurines of Zhob Culture and other pieces of jewelry

(a) The head ornaments of a terracotta figurine from Kundani-Stein-*Memoirs* ; 37 pl. XII-k 14.

(b) The head ornaments of a terracotta figurine from Periano Ghundai-Stein-*Ibid* ; pl. IX-p 262.

(c) The head ornaments of a terracotta figurine from Sur jangal Stein-*Ibid* ; pl. XVI-s. j. 60 ; p. 75.

(d) The head ornaments of a terracotta figurine from Dabar kot-Stein-*Ibid* ; pl. XVI-D. h. d. 9-p. 62.

(e) The head ornaments of a terracotta figurine from Periano Ghundai-Stein-*Ibid* ; pl. IX-p. w. 9.

(f) An adjustable silver bangle from Moghal Ghundai-Stein-*Ibid* ; p. 47. pl. XII m. VI.

(g) A figurine from Dabarkot-Stein-*Ibid* ; p. 62. pl. XVI-Dn VI-I-52 nifr.

(h) A bronze ring with bezel top engraved with two figurines-Stein-*Ibid* ; p. 48. pl. XII-mnw vii.

(i) Two copper wire rings (for the ear) from Moghal Ghundai Stein-*Ibid* ; pl. XII (x) mnw xvii.

(j) A beautiful inlaid bead of paste from Kundani-Stein-*Ibid* ; pl. IX 16.

(k) Tiny shell beads from Periano Ghundai in the shape of discs probably of bone-Stein-*Ibid* ; p. 37.

(l) A piece of bone bangle from Periano Ghundai-Stein-*Ibid* ; p. w. 8.

PLATE IV

PLATE V

Pl V

Neck and wrist ornaments on the figurines of Zhob Culture and pieces of bangles

(a) Necklace on the terracotta figurine from kundani (indistinct on the plate of Stein) Stein-*Memoirs* 37 pl. XII-k. 14 (Piggott-*Prehistoric India*, p. 127 fig. 16).

(b) Necklaces on the terracotta figurine from Dabarkot-Stein-*Ibid* ; pl. XVI DND 9.

(c) Necklaces on the terracotta figurine from the Zhob Valley Piggott-Prehistoric India p. 127 ; fig. 16c.

(d) Neck plate on a terracotta figurine from Periano Ghundai-Stein-*Ibid* ; pl. IX P. 262.

(e) Necklaces with pendants on the terracotta figurine from Moghul Ghundai-Stein-*Ibid* ; pl. XII mm 61.

(f) Necklaces with pendants on the terracotta figurine from Periano Ghundai-Stein-*Ibid* ; pl. IX p. w. 5.

(g) Wrist ornaments on a figurine from Dabar kot-Stein-*Ibid*; pl. XVI-DNVI. 1.

(h) A piece of a clay bangle from Periano Ghundai-Stein-*Ibid*; pl. IX pw 16.

(i) A piece of bangle of clay from Sur jangal-Stein-*Ibid* ; pl. XVI sj. 125.

Pl. VI

Head ornaments of Kulli Mehi Culture

(a) The front part of a fillet on a terracotta figurine from Mehi-Stein-*Memoirs* 43 ; pl. XXXI-Mehi III2, 2.

(a[1]) The back part of the fillet on (a).

(b) The fillet on the terracotta figurine from Mehi-Stein-*Ibid* ; pl. XXXI-Mehi III 8, 3.

(c) An ornamented fillet on a man's head coming down over the shoulders-Stein-*Ibid* ; pl. XXXI-Mehi 10.2.a.

(d) A fillet on a terracotta figurine binding the hair of a terra-cotta figurine from Mehi-Stein-*Ibid* ; pl. XXXI-Mehi III 6.17.

(e) A fillet binding a beautiful coiffure of a terracotta figurine from Mehi-Stein-*Ibid* ; pl. XXX-Mehi III 4-10.

(f) A headless terracotta figurine from Kulli-Stein-*Ibid* ; pl. XXII-Kul. 1, 4a.

(g) Parts of a fillet on a figurine of terracotta from Kulli-Stein-*Ibid*; pl. XXII-Kul. V, VII, 3.

(h) Head ornaments consisting of leaves of gold on a terracotta head from Mehi-Stein-*Ibid* ; pl. XXXI-Mehi. 1,2,17.

(i) Side view of a fillet which goes round the head of a terra-cotta figurine from Mehi-Stein-*Ibid* ; pl. XXXI Mehi. I, 13.

(j) A hair pin from kulli-Stein-*Ibid* ; pl. XXII-Kul. I 1, 8a.

(k) Fillet binding a high coiffur of a lady on a terracotta figurine from Mehi-Stein-*Ibid* ; pl. XXXI-Mehi III-4,2.

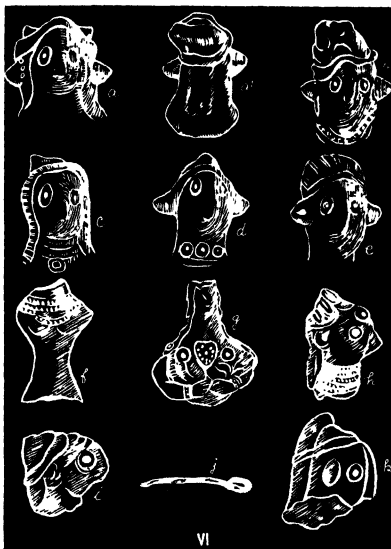



PLATE VI

PLATE VII

Pl. VII

Neck and wrist ornaments on the figurines of Kulli-Mehi Culture and pieces of ornaments found on the sites

(a) Neck ornaments on a terracotta figurine from Mehi-Stein-*Memoirs* 43 ; pl. XXXI–Mehi III 2,2.

(b) Neck ornaments on a terracotta figurine from Mehi Stein-*Ibid* ; Mehi III 8,3.

(c) Neck ornaments on terracotta figurine Mehi-Stein-*Ibid* ; Mehi II 10. 2a.

(d) Neck ornaments on a terracotta figurine from Mehi-Stein-*Ibid* ; Mehi III 6, 17.

(e) Neck ornaments on a terracotta figurine from Mehi-Stein-*Ibid* ; Mehi III 4,10.

(f) Neck ornaments on a terracotta figurine from Mehi-Stein-*Ibid* ; Mehi III 1.7.

(g) Chokers on a terracotta female figurine from Mehi-Stein-*Ibid* ; Mehi III 1.7.

(h) Necklaces on a terraccotta figurine from Mehi-Stein-*Ibid* ; Mehi 1,3,4a.

(i) Necklaces on a terracotta figurine from Mehi-Stein-*Ibid* ; Mehi III 7. 1.

(j) Bangles on the wrists of the terracotta figurines from Mehi-Stein-*Ibid* ; Mehi 1,3,40.

(k) Decorated bangles on the wrists of a male figurine from Mehi-Stein-*Ibid* ; Mehi III 2,2.

(l) A copper hair pin studded with lapis lazuli 4½" long-Stein-*Ibid* ; Mehi III 6,9 p. 158.

(m) A copper pin with a flat head and bearing linear decoration; Stein-*Ibid* ; Mehi III 2,2a, p. 157.

(n) Bangles from Mehi Stein-*Ibid* ; Mehi III, 34, a ; III, 6, 18a.

(o) Copper bangle from Mehi-Stein-*Ibid* ; p. 158 ; pl. XXXII Mehi III 6.6.

(p) Copper bangle from Mehi-Stein-*Ibid* ; p. 158 ; pl. XXXII-Mehi III 6. 7.

(q) Copper bangle from one of the burial pots-Stein-*Ibid* ; pl. XXXI–Mehi 1.8.2 ; p. 156.

(r) A small bone pendant neatly decorated-Stein-*Ibid* ; pl. XXXI–Mehi III 6, 18.

Pl. VIII

Pieces of jewelry of Harappa Culture

(a) Bangle of gold diameter 2-3/9"-Vats *Excavation at Harappa* pl. c XXXVII-1.

(b) An armlet, hollow, of gold diameter 3.5" Vats-*Ibid* pl. XXXVII-14.

(c) A silver bangle oval-Vats-*Ibid* ; p-65 ; pl. XXXVII-4.

(d) A conical gold cap for the head with doubled rim and a silver hook for attachment near the appex, height 1-5/16" base diameter 1-1/4"-Vāts-*Ibid* ; pl. C XXXVII-2.

(e) Two small necklaces of gold beads each having 67 round beads and two terminals-Vats-*Ibid* ; pl. C XXXVII-3.

(f) A fan-like head ornament of faience-Vats-*Ibid* ; pl. CXXXIX-2 (It has linear decoration representing peacock's tail).

(g) A crescent shaped pendant of banded agate with red bands ; length 2.5" - Vats - *Ibid* ; pl. CXXXIX - 1 (p. 440).

(h) Part of a fan like head ornament of ivory-Vats - *Ibid* ; pl. CXXXIX-69.

(i) A necklace of 8 barrel shaped jade and gold discoid beads, the gold beads have been formed by soldering the edges of two convex discs-Vats - *Ibid* . pl. C XXXVII - 17.

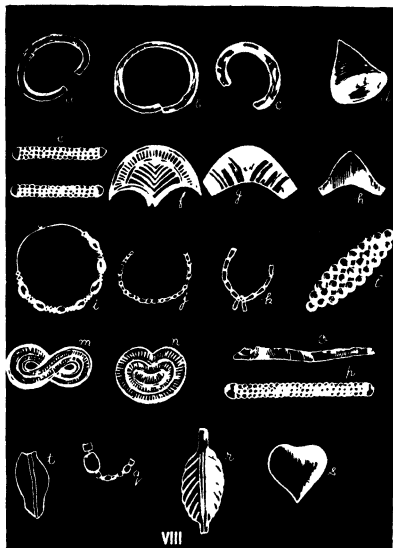
(j) A string of small cylindrical gold beads-Vats - *Ibid* ; pl. CXXXVII-18.

(k) A string of beads which has two tips of pendant head with gold ends and eight tubular beads - 2 having gold ends-Vats - *Ibid* ; pl. CXXXVII - 19.

(l) A modern brooch like ornament with 27 hollow conical bosses with gold hooks soldered at the appex-Vats - *Ibid* ; pl. CXXXVII-6,20. (Two such sets have been found perhaps used for hair decoration or as brooches for holding germents.)

(m) A head ornament in the figure of '8'. Three bands of gold are set on a silver plate and soldered. It is decorated further by in-laying two rows of tiny burnt steatite heads capped with gold ends. There are two holes in the loops for attachment, length 2¼" width 1 - 1/8",-Vats - *Ibid* ; pl. CXXXVII-15.

(n) Heart shaped pendant of gold inlaid with ribbed bands of faience-Vats - *Ibid* ; pl. CXXXVII-8.

PLATE VIII

(o) Gold fillet 5 2″ in length-Vats - *Ibid* ; pl. CXXXVII - 22.

(p) A gold necklace consisting of 240 round gold beads in four rows, four spacers, and two terminals-Vats - *Ibid* ; pl. CXXXVII-7.

(q) Beads of faience-Vats -*Ibid* ; pl. CXXXVII-5.

(r) Leaf shaped pendant of blue faience, length 1.7″, width. 65″ Vats - *Ibid* ; pl. CXXXIX-3.

(s) Pipal leaf shaped pendant of faience-Vats - *Ibid*; pl. CXXXIX-5.

(t) Lemon leaf shaped pendant of burnt steatite-Vats - *Ibid* ; pl. CXXXIX-4.

Pl. IX

Pieces of Jewellery of Harappa Culture

(a) Lotus shaped pendent with eight petals inlaid with lapis lazuli and red stone alternatively of burnt steatite-Vats *Excavations at Harappa*-pl. CXXXIX - ?

(b) An ear top with a star in the centre, of burnt steatite Vats - *Ibid*; pl. CXXXIA - 8.

(c) An ear top with a border of leaves and a star in the centre Vats - *Ibid.*, pl. CXXXIX - 12.

(d) An ear-top with a plain circle followed by a cabled one. It has a central hole and its ends are sereated-Vats - *Ibid*; pl. CXXXIX - 11.

(e) Another ear-top with a star in the centre enclosed by two concentric circles Vats - *Ibid* , pl. CXXXIX - 13.

(f) An ear-top with a plain centre and cabled border Vats-*Ibid*; pl. CXXXIX-14.

(g) Ear-drop of faience Vats *Ibid*; pl. CXXXIX-40.

(h) Ear-drop of faience Vats-*Ibid*; pl. CXXXIX-25.

(i) Ear studs in the form of a dumb-bell of faience Vats-*Ibid*; pl. CXXXIX-26.

(j) A cone - like ornament of silver inlaid with a piece of shell-Vats-*Ibid.*, pl. CXXV-51.

(k) A cone - like head ornament of silver inlaid with a piece of shell Vats-*Ibid.*, pl. CXXV-51.

(l) A copper ring with three over-lapping coils-Vats-*Ibid*; pl. CXXV-56.

(m) Ear-drop of burnt steatite in the form of a plum-Vats-*Ibid*; pl. CXXXIX-31.

(n) A temple boss with concentric circles decoration- ats-*Ibid*, pl. CXXXVIII-27.

(o) A disc of faience an ear top Vats-*Ibid*, pl CXXXIX-20.

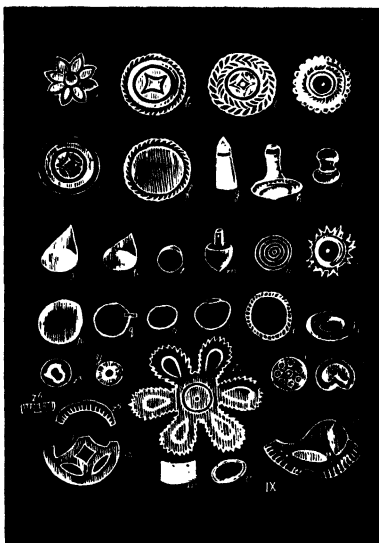
(p) Another temple boss plain Vats-*Ibid*; pl. CXXXVIII-26.

(q) Earring of thin copper wire-Vats-*Ibid*; pl. CXXV-4.

(r) A finger ring of gold rectangular in section Vats-*Ibid*; pl. CXXV- 55.

(s) A finger ring of copper with a bezel soldered on the joint Vats-*Ibid*; pl. CXXV-49.

(t) A faience finger ring with cable pattern on it Vats-*Ibid*; pl. CXXXIX-43.

PLATE IX

(u) A finger ring of burnt steatite-Vats-*Ibid*; pl. CXXXIX-24.
(v) A finger ring of alabaster-Vats-*Ibid*; pl. CXXVIII-20.
(w) An armlet of burnt of steatite-Vats-*Ibid*; pl., CXXXVIII-40.
(x) A button of faience decorated with small concentric circles-Vats-*Ibid*., pl. CXXVIII-26.
(y) A botton of steatite decorated-Vats-*Ibid*; pl. CXXVIII-30.
(z) A girdle piece of faince-Vats-*Ibid*; pl. CXXVIII-28.
(z^1) A shell inlay piece having a four pointed star decoration Vats-*Ibid*; pl. CXXXIX-41.
(z^2) Another girdle piece-Vats-*Ibid*; pl. CXXXIX-85.
(z^3) A steatite button-Vats-*Ibid*; pl. CXXXIX-30.
(z^4), (z^5), (z^6) Shell inlay pieces-Vats-*Ibid*; pl. CXXXIX-84, 76, 66.

Pl. IX A

Head cones of Harappa

(a) Ivory cone like head ornament-Vats-*Excavations at Harappa*; pl. CXXXVIII-24.

(b) Pottery cone like head ornament-Vats - *Ibid.*, p. 44\`, No. 4183.

(c) Pottery cone like head ornament Vats-*Ibid.*, p. 443 No. 6028.

(d) A faience cone like head ornament Vats-*Ibid*; pl. CXXXVIII-28.

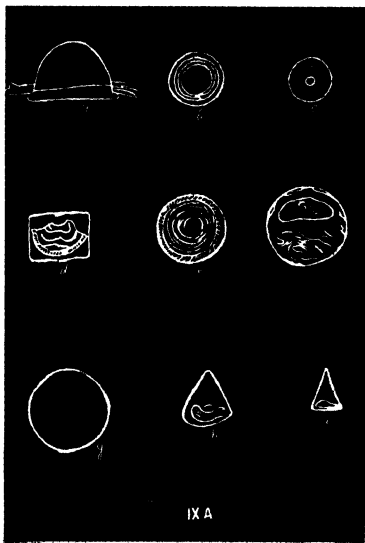
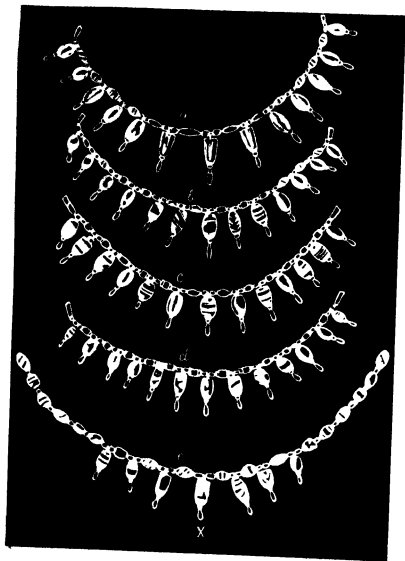
(e) Another faience cone like head ornament-Vats-*Ibid*; pl. CXXXVIII-33.

(f) A burnt steatite cone like head ornament-Vats-*Ibid*; pl. CXXXVIII-34.

(g) A convex shell disc-a dimunitive of the cone like head ornament-Vats-*Ibid*; pl. CXXXVIII-35.

(h) Burnt steatite cone-Vats-*Ibid*; pl. CXXXVIII-31.

(i) A conical faience head ornament - Vats - *Ibid*; pl. CXXXVIII-31.

PLATE IX A

X

Pl. X

Necklace pieces of Harappa Culture

(a) A necklace with thirteen pendants of green jasper and four long facetted beads of gold etc.-Vats-*Excavations at Harappa*; pl. CXXXVII-9; p. 65.

(b) Another necklace with thirteen pendants of green jade, seven of blue faience etc.-Vats-*Ibid*; pl. CXXXVII-10.

(c) A necklace like (b) with 8 oval beads of burnt steatite with gold ends etc.-Vats-*Ibid*; pl. CXXXVII-11.

(d) A necklace with thirteen pendants of green jade, 9 oval beads of faience blue in colour having gold ends lentoid in section, and 26 beads of burnt steatite with gold ends which are cylindrical in shape Vats-*Ibid.*, pl. CXXXVII-12.

(e) A necklace with seven pendants, 26 cylindrical beads of burnt steatite with gold end, two of faience, 18 beads of agate and haemetite, oval lentoid in section Vats-*Ibid.*, pl. CXXXVII-13.

Pl. XI A

Bangles and finger rings of Harappa Culture

(a) A fragment of green faience bangle, oval in section with cheveron pattern–Wheeler–Harappa, *Ancient India* No. 3; pl. LIII–A-1.

(b) A fragment green faience bangle, oblate in section with angular lines marked on it – Wheeler–*Ibid.*, pl. LIII–A-2.

(c) A fragment of green faience bangle circular in section plain Wheeler–*Ibid*; pl. LIII–A-3.

(d) A fragment of steatite bangle white, oblong in section plain - Wheeler–*Ibid*; pl. LIII–A-4.

(e) A fragment of steatite bangle white ; plano-convex in section–Wheeler-*Ibid*; pl. LIII–A-5.

(f) A fragment of steatite bangle, white, oblong in section–Wheeler–*Ibid*; pl. LIII A-6.

(g) A fragment of steatite bangle with linear markings. Wheeler –*Ibid*; pl. LIII–47.

(h) A fragment of faience bangle with double slanting lines marking green–Wheeler–*Ibid.*, pl. LIII A-8.

(i) A fragment of steatite bangle oblong in section-Wheeler–*Ibid*; pl. LIII A-9.

(j) A fragment of green faience bangle with cheveron pattern on it–Wheeler–*Ibid*, pl. LIII A-10.

(k) A steatite finger ring oblong in section–Wheeler – *Ibid*; pl. LIII A-11.

(l) A fragment of polished green faience bangle–Wheeler–*Ibid*; pl. LIII A·12.

(m) A faience bangle green in colour – Wheeler – *Ibid*; pl. LIII A-13.

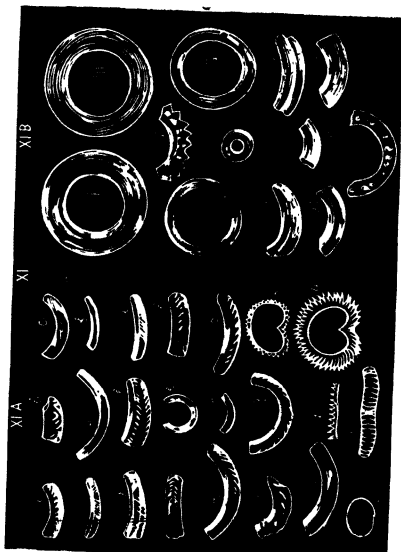
(n) A faience finger ring white in colour – Wheeler - *Ibid*; pl. LIII A-14.

(o) A faience bangle green in colour, oblate in section–Wheeler-*Ibid*; pl. LIII A-15.

(p) A faience bangle green in colour with semi spiral marking one end of the bangle has concentric circles–Wheeler-*Ibid*; pl. LIII A-16.

(q) A white faience bangle oblate in section–Wheeler–*Ibid*; pl. LIII-17.

PLATE XI B

XI A
XI
XI B

(r) Heart shaped bangle of faience with deep cogged surface-Vats - *Excavation at Harappa*; pl. CXXXVIII - 2.

(s) A fragment of white faience bangle oblate in section-Wheeler - *Ibid*; pl. LIII A-19.

(t) A faience bangle with keeled edges-Vats - *Excavation at Harappa*; pl. CXXXVIII-6.

(u) A faience bangle with deep keeled edges-Vats - *Ibid*; pl. CXXXVIII - 3.

(v) A keeled faience bangle-Vats - *Ibid*; pl. CXXXVIII - 5.

(w) A copper ring with overlapping ends-Vats - *Ibid*; pl. CXXV - 56.

Pl. XI B

Terracotta Bangles and finger Ring from Hrrappa

(i) A pottery bangle grey in colour with metallic ring-Vats-*Excavations at Harappa*; pl. CXXXVIII - 1.

(ii) Terracotta bangle oval in section - Wheeler-*Harappa - Ancient India No. 3* ; pl. LIII B 2.

(iii) Terracotta bangle rectangular in section - Wheeler - *Ibid*; pl. LIII B-4.

(iv) Terracotta bangle circular in section - Wheeler - *Ibid*; pl. LIII B-6.

(v) Terracotta bangle with cogged wheel edges - Wheeler - *Ibid*; pl. LIII B-3.

(vi) Terracotta finger ring round - Wheeler - *Ibid*; pl. LIII B 5.

(vii) A bangle fragment of pottery made of two pieces pressed together - Wheeler - *Ibid*; pl. LIII B-9.

(viii) A bangle fragment polished, triangular in section - Wheeler-*Ibid*; pl. LIII B-8.

(ix) A terracotta bangle fragment with corrugated outer surface-Wheeler - *Ibid*; pl. LIII B-7.

(x) A fragment of a terracotta bangle grey in colour - Wheeler - *Ibid*; pl. LIII B-11.

(xi) A fragment of a polished terracotta bangle oval in section - Wheeler - *Ibid*; pl. LIII B-10.

(xii) A keeled terracotta bangle red in colour with heart shaped design on it in white-Vats-op. cit; pl. CXXXVIII-7,

Pl. XII

Beads, separaters and necklace ends of Harappa Culture

(a) Round gold beads-Vats - *Excavations at Harappa*; pl. ĊXXXIV-7a.

(b) Cylindrical beads of gold-Vats - *Ibid*; pl. CXXXIV-7c.

(c) A facetted bead of gold-Vats- *Ibid;* pl. CXXXIV-7d.

(d) A barrel shaped bead of gold-Vats-*Ibid*; pl. CXXXIV-7b.

(e) A disc shaped gold bead-Wheeler-Harappa-*Ancient India No. 3.* pl. LII-A-1.

(f) A long tubular gold bead-Wheeler-*Ibid*; pl. LII-A2.

(g) A barrel shaped bead of gold-Wheeler-*Ibid*; pl. LII A3.

(h) A round Silver bead-Vats-op. cit; pl. CXXXIV-6.

(i) A round copper bead-Vats-op. cit; pl. CXXXIV-5.

(j) Etched carnelian bead with white concentric circles-Vats-*Ibid*; pl. CXXXI-4a.

(k) Etched carnelian bead with one thick white band-Vats-*Ibid*; pl. CXXXI-4b.

(l) Etched carnelian bead oval in section with a thick white band-Vats - *Ibid*; pl. CXXXI-4c.

(m) An etched carnelian bead piece-Vats - *Ibid*; pl. CXXXI - 4d.

(n) A steatite bead barrel shaped with four bands carved on it-Vats - *Ibid*, pl. CXXXII - 2a.

(o) A steatite bead with trefoil design carved on it-Vats - *Ibid*; pl. CXXVIII - 5.

(p) A barrel shaped steatite bead with trefoil design and the lines relieved by paint-Vats-*Ibid*; pl. CXXXIV - 15.

(q) Segmented beads of faience with two compartments-Wheeler-*op. cit*; pl. LI - 22.

(r) Segmented beads of faience with three compartments-Wheeler-*op. cit*; pl. LI - 21.

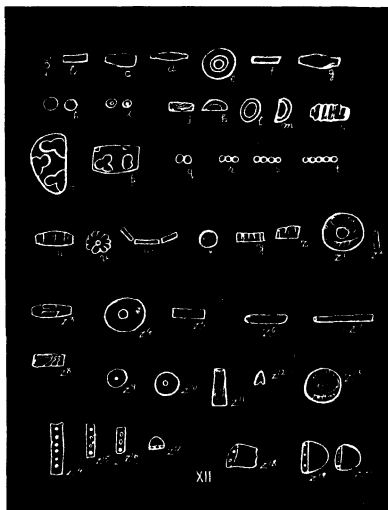
(s) Segmented beads of faience with five compartments-Vats-*op. cit*; pl. CXXXIII - 6b.

(t) Pottery beads like segmented beads of faience-Vats - *Ibid*; pl. CXXXIV - n.

(u) A faience bead an imitation of etched carnelian bead-Vats-*Ibid*; pl. CXXXIII-8a.

(v) A faience bead, blue in colour in the form of *an āmalaka*-Vats-*Ibid*; pl. CXXXIII-9,0.

(w) Black tubular beads of faience-Vats-*Ibid*; pl. CXXXIII-5b,

PLATE XII

(x) Round faience beads-Vats-*Ibid*; pl. CXXXIII-8f.

(y) A long cylindrical faience bead with white markings-Wheeler-*Harappa-Ancient India no.* 3. pl. LI-19. fig-26-13.

(z) A roughly cylindrical circular faience bead-Wheeler-*op. cit*; fig-26-14.

(z^{1}) A yellow faience bead circular-Vats—*op. cit*-pl. CXXXIII-7a.

(z^{2}) A faience long cylindrical circular bead-Wheeler-*Ibid;* fig-26 - 15.

(z^{3}) An Etched carnelian bead-Wheeler - *Ibid*; fig 26 - 11.

(z^{4}) A standard barrel circular bead of faience-Wheeler - *Ibid*; fig - 26 - 9.

(z^{5}) A shell bead long tubular-Wheeler - *Ibid*; fig - 26 - 17.

(z^{6}) A carnelian bead tubular-Vats - *op. cit*; pl. CXXXI - 2g.

(z^{7}) A faience bead, long conical circular-Wheeler - *op. cit*; fig - 26 - 20

(z^{8}) A banded agate bead rectangular-Vats-*op. cit.* pl. XXVIII-50.

(z^{9}) A circular marble bead-Vats-*op. cit*; pl. CXXXI - fig - 7b.

(z^{10}) A circular chert bead-Vats-*Ibid;* pl. CXXXI-fig-3h.

(z^{11}) A steatite fluted bead-Vats-*Ibid;* pl. CXXXII-fig-5 u.

(z^{12}) A denticular bead of steatite-Vats-*Ibid;* pl. CXXXII-fig-4e.

(z^{13}) A circular bead of steatite-Vats-*Ibid*; pl. CXXXIII-fig-1a.

(z^{14}) A spacer with six holes-Vats-*Ibid*; pl. CXXXVIII - 48.

(z^{15}) A spacer with four holes-Vats-*Ibid*; pl. CXXXVIII - 46.

(z^{16}) A spacer with three holes-Vats - *Ibid;* pl. CXXXVIII - 47.

(z^{17}) A faienee spacer-Vats - *Ibid;* pl. XXXIII - 4b.

(z^{18}) A faience spacer with two holes-Vats-*Ibid;* pl. CXXXVIII-41.

(z^{19}) Necklace end with three holes-Vats-*Ibid*; pl. CXXXVIII-49.

(z^{20}) Necklace end semicircular-Vats - *Ibid*; pl. CXXIV - 20.

Pl. XIII

Hair pins and amulets of Harappa Culture

(a) A bronze hair pin showing a dog biting the ear of a deer as it was found–Vats - *Excavation at Harappa.*, pl. CXXV-34.

(b) The same bronze pin (a) when cleaned - Vats - *Ibid.*, pl. CXXV - 36.

(c) A bronze hair pin without the top-Vats - *Ibid.*, pl. CXXV - 37

(d) A steatite bird amulet without head - Vats - *Ibid.*, pl. LXXVIII - 1.

(e) A faience parrot 8" long, an amulet-Vats-*Ibid.*, pl. LXXVIII-2.

(f) A duck, amulet-Vats - *Ibid.*, pl. LXXVIII - 18.

(g) A figure of rhinoceros of burnt steatite used as an amulet-Vats - *Ibid.*, pl. LXXIX - 74.

(i) A fish of faience with white glaze used as an amulet-Vats - *Ibid.*, pl. LXXVIII - 20.

(j) A squirrel of faience used as an amulet - Vats - *Ibid.*, pl. LXXVIII - 30.

(k) A faience ram, amulet - Vats - *Ibid.*, pl. LXXVIII - 42.

(l) A humped bull, amulet Vats - *Ibid.*, pl. LXXIX - 66.

(m) A bull's head of shankh, an amulet-Vats-*Ibid.*, pl. LXXIX-68.

(n) An amulet in the shape of fish, of steatite - Vats - *Ibid.*, pl. XCV - 428.

(o) A terracotta monkey, amulet-Vats - *Ibid.*, pl. LXXVIII - 35.

(p) An armadillo of terracotta, an amulet painted white - Vats - *Ibid.*, pl. LXXVIII - 26.

(q) A seal amulet bearing on one side the figure of a god and on the other letters in Mohinjodaro script - Vats - *Ibid.*, pl. XCIII - 307.

(r) (u) (w) } Three faces of a steatite seal–amulet showing gods with clubs in their hands and a letter in Mohinjodaro script-Vats - *Ibid.*, pl. XCIII - 305.

(s) A seal–amulet with a god wearing a two pronged crown-Vats - *Ibid.*, pl. XCIII - 319.

(t) A seal–amulet with a god wearing three pronged crown-Vats - *Ibid.*, pl. XCIII - 318.

(v) A faience cross amulet with all the arms equal to one another–Vats - *Ibid.*, pl., CXXVIII - 27.

(x) A sealing amulet in the shape of a leaf - Vats - *Ibid.*, pl. XCV–417.

PLATE XIII

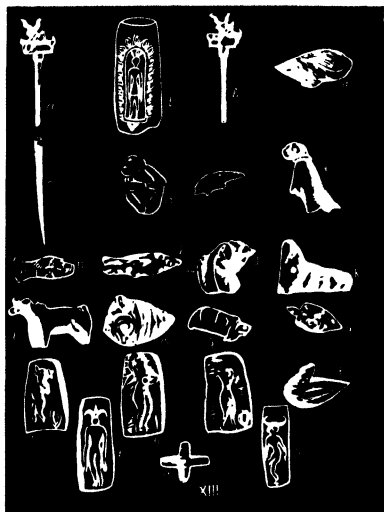



PLATE XIV

Pl. XIV

Head ornaments on the Terracotta figurines of Harappa

(a) A terracotta figurine with a fan like ornament and two panniers on sides, one of which is broken-Vats - *Excavations at Harappa* - pl. LXXVII - 44.

(b) A terracotta figurine wearing a fan like ornament semi circular in shape over a round crown - Vats - *Ibid.*, pl. LXXVII - 41.

(c) A terracotta figurine with a semi circular fan-like ornament with ends curving down over a round ornamented crown-Vats - *Ibid.*, pl LXXVII - 42.

(d) A fan-like ornament and two panniers on each side of the head of a terracotta figurine - the fan-like ornament is decorated with two flowers-Vats - *Ibid.*, pl. LXXVII - 40.

(e) A terracotta figurine with a fan like ornament with three flowers, of which one is missing and two panniers on the sides - Vats - *Ibid.*, pl LXXVII - 39.

(f) A round fan-like ornament and a pannier on the left side there are three flowers on the fan of a terracotto figurine-Vats - *Ibid.*, pl. LXXVII - 37.

(g) A terracotta figurine wearing three flowers on her head arranged to form a triangular crown. There is a round piece in the centre - Vats - *Ibid.*, pl. LXXVII - 34.

(h) A terracotta figurine perhaps of a priestess with two horns-Vats - *Ibid.*, pl. LXXVII - 52.

(i) A fan-like ornament on the head of a terracotta figurine with straight edges - Vats - *Ibid.*, pl. LXXVII - 57.

(j) A tall cap-like crown with a boss at the top and a round boss on the left side - Vats - *Ibid.*, pl. LXXVII - 63.

(k) A fan-like ornament with two panniers, the fan is decorated with flowers of three petals - Vats - *Ibid* ; pl. LXXVII - 36.

Pl. XV

Head ornaments on the figurines of Harappa

(a) A fan-like ornament with two panniers. The fan curves forward in the shape of snake's - hood-Wheeler - *Harappa-Ancient India No. 3* ; pl. LVI - 1.

(b) A fan-like ornament on a terracotta figurines with fillets binding it - Wheeler - *Ibid*; pl. LVI - 2.

(c) A fillet with three bosses on a terracotta figurine's head-Wheeler - *Ibid*., pl. LVI - 5.

(d) A crown with curved horns bearing a design of three leaves at the base - Wheeler - *Ibid*., pl. LVII - 10.

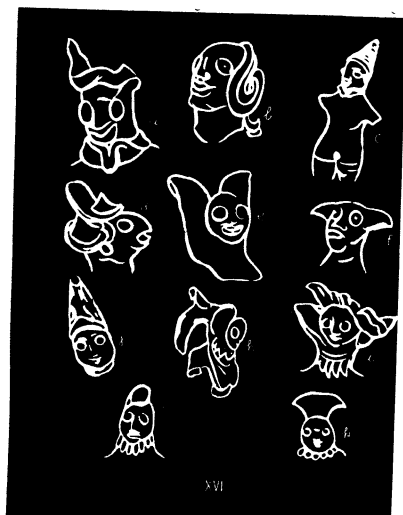
(e) A semi - circular fan-like ornament and two panniers on sides - Wheeler - *Ibid*; pl. LVII - 22.

(f) A decorated crown with two curved horns - Wheeler - *Ibid*; pl. LVII - 11.

(g) A round fan-like ornament in the shape of snake's - hood-Wheeler - *Ibid*; pl. LVIII - 27.

(h) A fan like ornament on the head of a terracotta figurine without panniers - Wheeler - *Ibid;* pl. LVIII - 23.

PLATE XV

PLATE XVI

Pl. XVI

Head ornaments on the figurines of Harappa Culture

(a) A terracotta figurine with horns on the head bound by a fillet-one horn is broken-Vats - *Excavations at Harappa* ; pl. LXXVI-21.

(b) Two fillets on a terracotta figure going round the head and the ears - Vats - *Ibid*; pl. LXXVI - 12.

(c) A cap-like crown, stepped, conical in shape-Vats - *Ibid* ; pl. LXXVI-19.

(d) A curved chair like head ornament with a cone at the top-Vats - *Ibid* ; pl. LXXVI-23.

(e) A split fan-like ornament on the head of a terracotta figurine-Vats - *Ibid* ; pl. LXXVI-22.

(f) A head ornament with two side cones-Vats - *Ibid* ; pl. LXXVII-50.

(g) A cone-like crown with three bosses in front-Vats - *Ibid* ; pl. LXXVII-60.

(h) A pecutiar head ornament ending into a tail behind-Vats-*Ibid;* pl., LXXVII-55.

(i) A leaf shaped head ornament with two panniers on two sides-Vats-*Ibid;* pl. LXXVII-47.

(j) A round boss on the front of the head bound by a fillet-Vats-*Ibid;* pl. LXXVII-62.

(k) A simple fan-like ornament on the head of a terracotta figurine-Vats - *Ibid*; pl. LXXVII-56.

Pl. XVII

Ear ornaments on the figurines of Harappa culture

(a) An Ear ornament on a terracotta figurine-Vats-*Ibid*; pl. LXXVII 31.
(b) ,, ,, ,, ,, ,, Vats-*Ibia*; pt. LXXVII-56.
(c) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-34.
(d) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-36.
(e) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII 35.
(f) ,, ,, ,, ,, ,, Vats *Ibid*; pl. LXXVII-39.
(g) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-40.
(h) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-51.
(i) A right ear ,, ,, ,, ,, Vats-*Ibid*; pl LXXVII-46.
(j) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVI - 30.
(k) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-53.
(l) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-67.
(m) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-43.
(n) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-57.
(o) ,, ,, ,, ,, ,, Vats-*Ibid*, pl. LXXVII-60.
(p) ,, ,, ,, ,, ,, Vats-*Ibid*; pl. LXXVII-64.
(q) Foot ornament on a terracotta plaque-Vats-Ibid; pl. LXXVI-25.

PLATE XVII

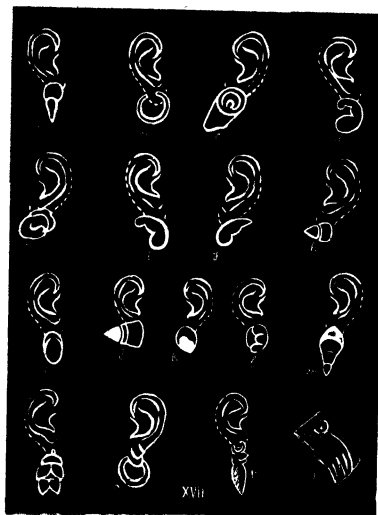
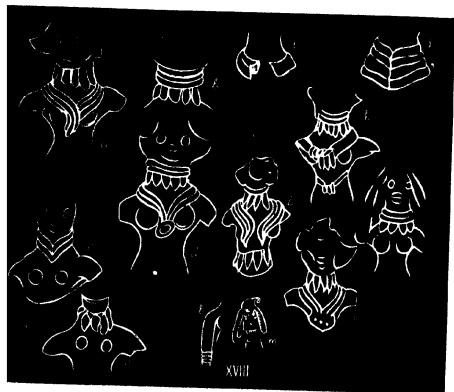



PLATE XVIII

Pl. XVIII

Neck and wrist ornaments of figurines of Harappa culture

(a) Neck ornaments on a terracotta figurine from Harappa-Wheeler-*Harappa-Ancient India No. 3* ; pl. LVI - 2

(b) A Choker with long pendants on a terracotta figurine from Harappa - Vats - *Excavations at Harappa–* ; pl. LXXVII - 31.

*(c) A Choker with five pendant on a terracotta figure wheeler–*Ibid*; pl. LVI–9.

(d) Neck ornaments on a terracotta figurine from Harappa-Wheeler - *Op, cit* ; pl. LVI - 3

*(e) Collars on a terracotta figurine-Wheeler-*Op, cit* ; pl. LVI - 8

(f) A flat round collar like neck ornament on a terracotta figure of Harappa-Vats - figurine from *Op. cit* ; pl. LXXVI - 11.

(g) Collars on the neck of a terracotta bearded man - Vats - *Ibid* ; pl. LXXVI - 12

(h) Neck ornaments on a terracotta figurine of Harappa - Vats-*Ibid* ; pl. LXXVII - 37

(i) Necklace and chokers on a terracotta figurine from Harappa-Vats - *Ibid* ; pl. LXXVII - 58

(j) Chokers on another terracotta figurine - Vats - *Ibid*; pl. LXXVII - 47

(k) Choker with long beads and a necklace with an amulet–Vats–*Ibid*; pl. LXXVII–35.

(l) Bangles on the wrists of a terracotta figurine - Vats - *Ibid*; pl. LXXVII - 50

(n) Bangles on the wrist and arms of a figurine of Harappa - Vats - Ibid ; pl. LXXVII - 51

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* For (c) in the text read (e) and for (e) read (c) p. 77 and 78.

Pl. XIX

Girdles of the Harappa figurines

(a) A girdle of large beads on a terracotta figure - Vats - *Excavations at Harappa* ; pl. LXXVI - 12

(b) A girdle of matallic band - Vats - *Ibid* ; pl. LXXVII - 52.

(c) A girdle of several strips of metal - Vats - *Ibid* ; pl. LXXVII - 62

(d) A girdle of several bands of metal with two bosses - Vats - *Ibid* ; pl. LXXVII - 53

(e) A girdle of several strips of metal with three bosses one of which is broken - Vats - *Ibid* ; pl. LXXVII - 51

(f) A girdle of several stripes of metal and three raised bosses Wheeler - Harappa - *Ancient India No. 3* ; pl. LVIII - 14

PLATE XIX

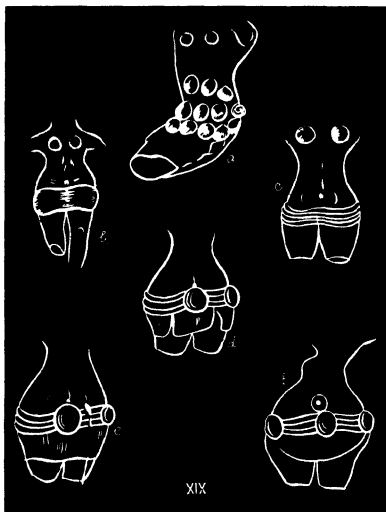
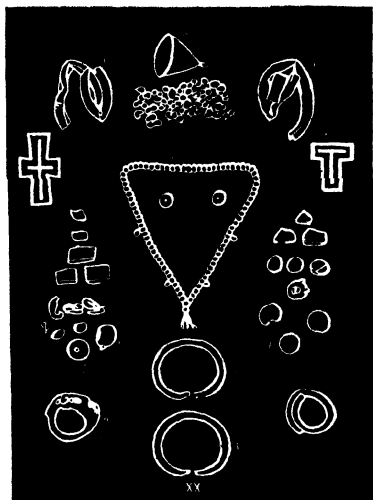



PLATE XX

Pl. XX

Pieces of Ornaments of Mohenjadrao culture

(a) A necklace of small globular beads of gold. All are cast. The spacers are made by soldering two beads together - Marshall *M. I. C.* Vol. II. p; *579* ; pl. CXLVIII A-7

(b) Shell in-lay piece in the form of a cross - Marshall - *Ibid* ; p. 566 pl. CLV-34

(c) Cone like head ornament. 1. 35" high with a gold loop inside Marshall-*Ibid*; pl. CXLVIII A-2

(d) }
*(e) } Hallow Gold bangles-Marshall-*Ibid*; CXLVIII-A-1 and 4

(f) Shell inlay piece in the form of 'T'-Marsall-*Ibid*; pl. CLV-35 (H. R. 4066)

(g) }
·(h) } Oval bangles of thin sheet of silver wrapped on core; ends turned inside-Marshall-*Ibid*; pl. CLXIV-(a), (b)

(i) }
(j) } Ear tops of silver-Marshall-*M. I. C.* pl. CXLVIII 9, 10

(k) A finger ring of flattened silver wire - Marshall - *Ibid*; pl. CLII-13.

(l) A finger ring of silver with overlapping ends-Marshall-*Ibid*; pl. CXLVIII A-15 (described on ear ring-marshall-*Ibid*-Vol. II p. 528)

(m) A fingur ring of silver with bezel top - Marshall - *Ibid*; CXLVIII A-11.

(q) An ear ring of silver wrongly referred to as (e) in the text on p. 41-a misprint-Marshall-*Ibid*; p. 519.

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* See (q) for (e) in the text p. 41.

Pl. XXI

A Necklace and a finger ring from Mohenjadaro.

(a) A long necklace composed of barrel shaped light green Jade beads measuring. 9″ long by ·045″ in diameter in the middle and ·25" at the ends. Each jade bead is separated from the other by five disc shaped beads of gold ·04″ in diameter, made by soldering two caps of gold. The necklace has seven pendants of agate jasper each suspended by a thick wire of gold thinned over and coiled at the end to form an eyelet, In between these pendants there are small cylindrical beads of seatite capped at each end with gold- Marshall-*M. I. C.* Vol. II; p. 519; pl. CXLVIII A-6.

(b) The bezel top of a silver ring bearing the design of crosses and semi-crosses - Marshall-*Ibid*; pl. CXLVIII A-13.

PLATE XXI

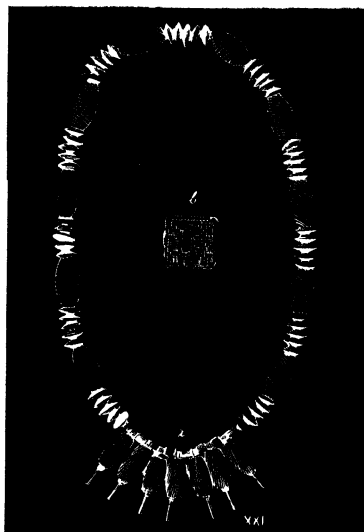
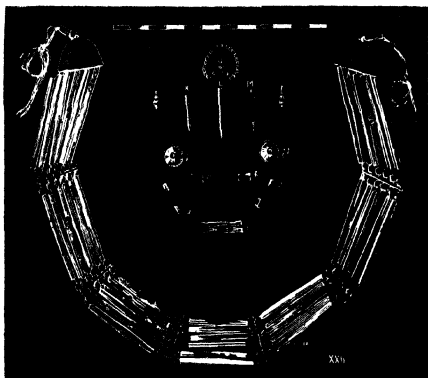



PLATE XXII

Pl. XXII

Necklace and eartops from Mohenjadaro

(a) A long necklace of carnelian beads–each is 4·85″ in length and 0·4" in diameter in the middle, bored from both ends. There are six spacers of bronze. At the end of each carnelian bead is a bronze bead. At the two ends are bronze semi-circular terminals followed by tube terminals Marshall– *M. I. C.* pl. CLI b - 10.

(b) A bead of turquoise capped at both ends with gold–Marshall- *Ibid*; pl. CLI b - 9

(c) (d) (e) (f) (g) (h) Oval gold caps of beads – Marshall – *Ibid*; pl. CL1 b – shown below the needles (gold varying from copper red to pale Yellow-Marshall–Vol. II–p. 521)

(i) (i[1]) Two ear tops of gold–Marshall–*Ibid*; pl. CLI b - 7, 8

(j) Small gold beads, round and barrel shaped–Marshall-*Ibid*; pl. CLI b - 1

(k) (l) (m) Three needles of gold 2·5″ to 1·7″ in lenght. Marshall– *Ibid*; pl. CLI b–3, 4, 5

Pl. XXIII

Ear tops and necklaces from Mohenjadaro

(a) }
(b) } Ear tops of gold-Marshall-*M. I. C.*; pl. CLI b - 7, 8.

(c) } Semi-circular necklace ends - Marshall - *M. I. C.*; pl.
(d) } CXLIX-1, 2.

(e) A necklace of six rows of round gold beads cast in mould, six holed spacers and semi-circular ends of gold-Marshall-*Ibid*; pl. CXLIX-3

(f) A necklace of minute beads of gold and steatite-with 21 pendants of beads of gold and cylindrical steatite beads-Marshall-*Ibid*; pl. CXLIX-4

(g) A necklace of ribboned jasper and carnelian beads interspersed with small cast gold beads with two large cast beads on either side of a gold capped bead in the centre. There are semi - circular terminals of gold - Marshall - *Ibid*; pl. CXLIX-5

(h) A neklace of fine rows of round gold and cylindrical steatite beads-There are eight fine holed spacers and two terminals of gold-Marshall-*Ibid*; pl. CXLIX-6

(i) A necklace composed mainly of globular gold beads, disc shaped gold beads ribbed in the middle, beads of onyx, green feldspar and turquoise matrix. In the centre there is an agate bead capped with gold and at the ends there are semi-circular ends of gold-Marshall-*Ibid*; pl. CXLIX-7

PLATE XXIII

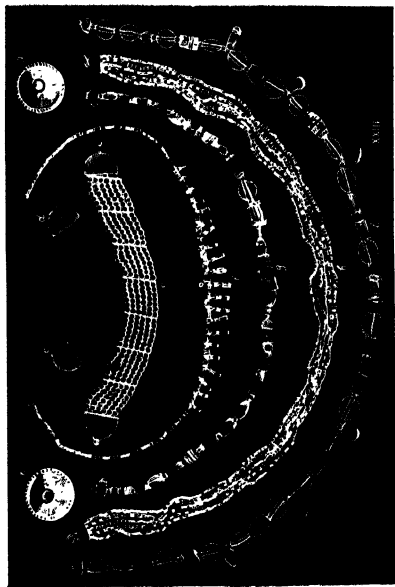
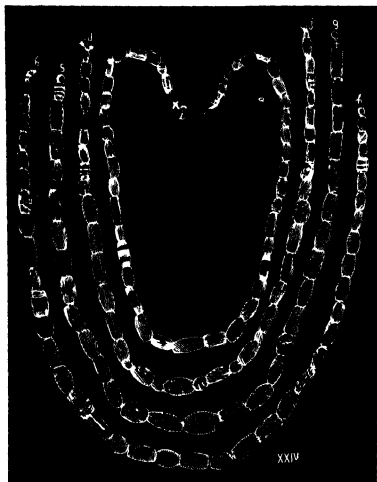



PLATE XXIV

Pl. XXIV

Necklaces from Mohenjadaro

(g) A necklace of barrel shaped beads of jasper, agate, carnelian onyx and cat'seye–Marshall–*M. I. C.*; pl. CL (g)

(h) A necklace of jasper, carnelian, etc. and two cut cat's eye beads–Marshall–*Ibid*; pl. CL (h)

(i) A necklace of fine beads of jasper, carnelian, chalcedony Jade, agate and gold mostly barrel shaped–Marshall–*Ibid*; pl. CL (i)

(j) A necklace of beads of jasper, carnelian, agate, lapis Lazuli and six beads of silver – Marshall – *Ibid*; pl. CL (j)

Pl. XXV

Fillets and bangles from Mohenjadaro

(a) A fillet of gold–Marshall-*M. I. C.* Vol. III; pl. CLI a above fig. 1.

(b) A fillet of gold decorated with holes-Marshall-*Ibid*; pl. CLI a-1

(c) A fillet of gold–Marshall–*Ibid*; pl. CLI a - by the side of (5)

(d) A fillet of gold–Marshall-*Ibid*; pl. CLI a - by the side of (4)

(e) A fillet in the shape of 'V'–Marshall *Ibid*; pl. CLI a - 6

(f) A fillet of gold in the shape of 'V'-Marshall-*Ibid*; pl. CLI a - 7

(g) A fillet of gold in the shape of 'V'-Marshall-*Ibid*; pl. CLI a - 8

(h) Bangle of sheet gold wrapped round a core-Marshall - *Ibid*; pl. CLI a - 2.

(i) Bangle of sheet gold wrapped round a core-Marshall - *Ibid*; pl. CLI a - 3.

(j) Bangle of sheet gold wrapped round a core-Marshall - *Ibid*; pl. CLI a - 9.

(k) Bangle of sheet gold wrapped round a core-Marshall - *Ibid*; pl. CLI a - 10.

PLATE XXV

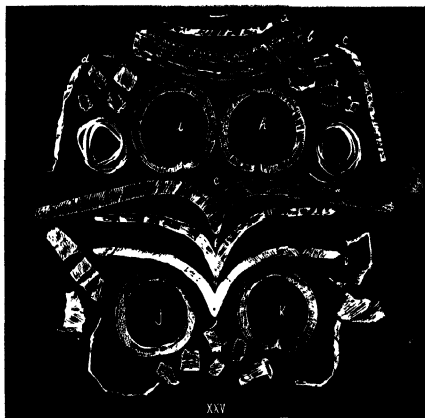
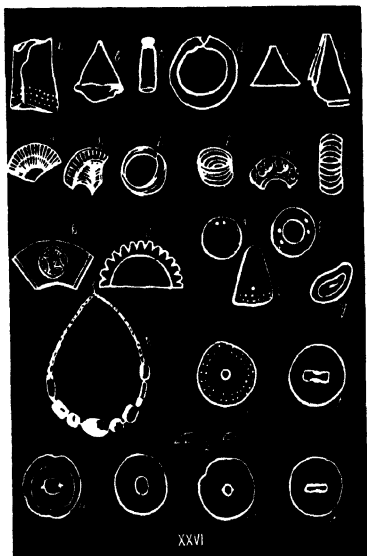



PLATE XXVI

Pl. XXVI

Pieces of Jewellery from Mohenjadaro

(a) A silver fillet with round dots *en repousée* near the base-Mackay-*F. E. M.* pl. CXXXV-4

(b) A cone like head ornament of silver-Mackay-*F. E M.*; pl. CXXXV-7

(c) An ear drop of horn blende - Mackay - *F. E. M.*; pl. CXXXV-8

(d) A bangle of silver-Mackay-*F. E. M.*; pl. CXXXV-13

(e) A cone like ornament of copper - Mackay - *F. E. M.*; pl. CV-22

(f) Half of a cone like ornament of shell-Mackay-*F. E. M.*; pl. CV-42

(g) A fan like ornament of vitreous paste-Mackay-*F. E. M*; pl. CVI-14

(h) A faience fan like head ornament-Mackay-*F. E. M.*; pl. CXL-40

(i) A copper finger ring with ends overlapping, 1.6" in diameter-Mackay-*F. E. M.*; pl. CXLII-17

(j) A disc of vitreous paste a variation of fan like head ornament 3.3" in diameter-Mackay-*F. E. M*; pl. CIX-22

(k) A fan like head ornament of variety paste decorated in the middle with a four pointed star and a circle-Mackay-*F.E.M.*; pl. CXLII-39 a.

(l) A finger ring of seven coils of bronze wire-slightly flattened from inside-·6" in size-Mackay-*F. E. M.*; pl. CXLII-18.

(m) A steatite finger ring with a trefoil design on it which has been carved, 1·45" in diameter. Mackay - *F. E. M.*; pl. CXLII-16.

(n) A faience ring made of light yellow paste fluted on the outside-1·6" in diameter-Mackay-*F. E. M.*; pl. CXL-51.

(o) Bullae of pottery–Amulet circular in shape with double row of pittings–Mackay–*F. E, M.*; pl. CXLII-1

(p) A spacer of necklace–Mackay–*F. E. M*; pl. CXL-31

(q) Bullae, triangular in shape like that on (o)–Marshall–*M. I. C.*; pl. CXXXIII-1

(r) A string of beads of gold, copper, Jasper and steatite forming part of a necklace – Mackay – *F. E. M.*; pl. CXXXV-22

(s) A button of faience with double row of pittings–Mackay–*F. E. M.* pl. XCI-30

(t) Reverse side of the button on (s)

(u) A button of paste of turquoise blue ·05 in diameter reverse view-Mackay–*F. E. M.*; pl. C–14

(v) Obverse of the button on (u)

(w) A button of steatite 1·1″ in diameter slightly rounded on the top–Mackay–*F. E. M,*; pl. CXXV-21

(x) A button of white steatite 1·13″ in diameter–Mackay–*F.E.M.* pl. CXL-32

*(y) (z) A button of faience with a diameter of ·55″–Mackay–*Ibid*; pl. CXXXIX·1 and another button of steatite 1·25″ in diameter–Mackay–*Ibid*; pl. CXXXIX-13

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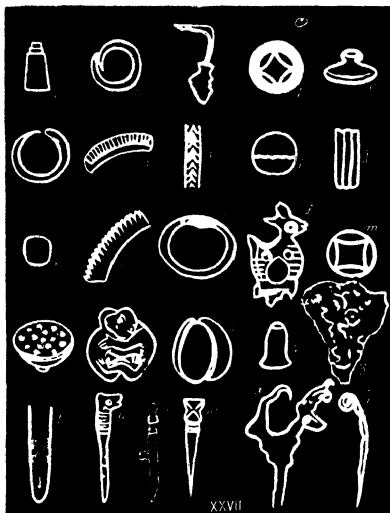
* The no. (y) has not come out on the plate the piece is illustrated to the leaf of z,

PLATE XXVII

Pl. XXVII

Hair pins and other pieces of Jewellery from Mohenjadaro

(a) An ear pendant of hornblende – Mackay – *F. E. M.*; pl. CXXXVII-11.

(b) A copper bangle of thick half round wire, ends almost overlapping-Marshall-*M. I. C.* ; pl. CLII-6

(c) An ear drop of bronze-Marshall-*M. I. C.*; pl. CXLIII-11

(d) A faience ear top with a four pointed star-Marshall-*M. I. C.*; pl. CLII-8

(e) The reverse side of the top on (d) - Marshall – *Ibid*; pl. CLII-7

(f) A copper bangle of thick rounded wire-Mackay–*F. E. M.*; pl. CXXXVI-95

(g) A piece of pottery bangle with fluted decoration–Marshall–*op. cit.*; pl. CLVII-22

(h) A piece of faience bangle with herring bone pattern-Marshall -*M. I. C.*; pl. CLII-3

(i) A composite bead of lime stone and shell. The groove is in the lime stone portion 1·08" in diameter–Mackay–*F. E. M.*; pl. CXXXVI-5; p. 504

(j) A bangle piece of faience with three flutings–Marshall–*M. I. C.*; pl. CXXXIV-6

(k) A piece of a gold fillet-Mackay-*F. E. M.* pl. CXXXV-18 p. 527

(l) An ivory hair-pin head in the form of a dog–Marshall–*M. I. C.*; pl. CLVIII-1

(m) A steatite hair-pin head with a four pointed star decoration–Marshall–*Ibid*; pl. CLVIII-2

(n) A vitreous paste hair-pin head in form of lotus fruit–Marshall–*Ibid*; pl. CLVIII-4

(o) A hair-pin head of steatite showing three monkeys clasping one another–Marshall–*Ibid*; CLVIII-5

(p) A terracotta hair - pin head in the form of a lotus bud-Marshall-*Ibid*; pl. CLVIII-11

(q) A shell hair-pin head in the form of a pot-Marshall-*M.I.C.*; pl. CLVIII-13

(r) A faience bangle piece with serrated rim-Marshall-*M. I. C.*; pl. CLII-9

(s) A shell bangle incomplete-Mackay-*F. E. M.*; pl. CXLII-15

(t) A piece of gold fillet with dotted decoration-Marshall-*M. I. C.*; pl. CXVIII-14

(u) An ivory hair-pin with a dog's head-Mackay-*F.* E. *M.* pl. XCI-27

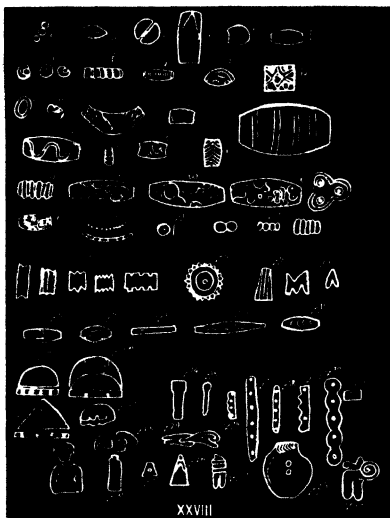
(v) A bone hair-pin 2·2" long-Mackay-*E. F. M.*; pl. C-5.

(w) An ivory hair-pin with an alter like head docorated with a cross-Mackay-*F. E. M.*; pl. C-1

(x) A bronze hair-pin with a double headed black buck at the top 4·4' in length-Mackay-*Ibid*; pl. C-3

(y) A copper hair-pin with coiled wire head 3·45" long-Mackay *F. E. M.*; pl. C-4

(z) Hair-pin head pear shaped-Marshall-*M. I. C.*; pl. CLVIII-3

PLATE XXVIII

Pl. XXVIII

Beads, spacers, and necklace ends from Mohenjadaro

(a) A round cast beads of gold - Marshall - *M. I. C;* pl. CXLVIII A-7

(b) A double convex disc shaped bead-Marshall-*M. I. C;* pl. CXLVIII A-6

(c) A middle ribbed bead of gold - Marshall - *M. I. C.;* pl. CXLIX-7

(d) A facetted bead of gold-Mackay-*F. E. M.;* pl. LXXXII-5

(e) A silver bead globular in shape - Mackay - *F. E. M.* pl. CXXXVII-52

(f) A barrel shaped bead of gold - Mackay - *F. E. M.;* pl. CXXXV-22

(g) Bronze beads globular in shape-Marshall-*M. I. C.* pl. CXLIII-16

(h) A copper wire bead-Mackay-*F. E. M.* pl. CXXXVI-13

(i) A pottery bead similar in shape to (b) Mackay-*F. E. M.* pl. CXXXVI-14

(j) An etched carnelian bead-Mackay-*F. E. M.;* pl. CXI-4

(k) An etched carnelian with concentric circles in five compartments- Mackay-*F. E. M.;* pl. CXXV-5

(l) An etched carnelian bead with one circle-Marshall-*M.I.C.;* pl. CXLVI-44

(m) An etched carnelian bead-Mackay-*F. E. M.*, pl. CXXXV-19

(n) A steatite bead in imitation of etched carnelian bead-a center piece-Mackay-*F. E. M.* pl. CXI-8

(o) A steatite bead in imitation of etched carnelian bead-Marshall-*Ibid;* pl. CXLVI-42

(p) A steatite bead an imitation of etched carnelian-Mackay-*F. E. M.;* pl. CXXXVI-60

(q) A steatite bead barrel shaped an imitation of etched carnelian bead-Mackay-*F. E. M.;* pl. CXXXVI-59

(r) A steatite head carved to imitate etched carnelian bead-Mackay-*F. E. M.;* pl. CXXXVI-35

(s) A steatite bead an imitation of carnelian bead-Mackay-*F. E. M.;* pl. CXI-35

(t) A glazed pottery bead-imitation of carnelian bead-Marshall-*M. I. C.;* pl. CXLVI-50

(u) A Carved bead of steatite - Mackay – *F. E. M.*; pl. CXXXVII-104

(v) A steatite bead carved with trefoil design-Mackay–*F. E. M*; pl. CXXXVII-97

(w) A steatite bead carved with trefoil design–Marshall–*M.I.C.*; pl. CXLVI-49

(x) (x′) A steatite bead carved with trefoil design and inlaid with paste and a steatite bead carved wish trefoil design–Marshall–*M. I. C.*; pl. CXLVI-53, 40

(y) A steatite bead carved with trefoil design–Mackay–*F. E. M.*; pl. CXXXVII-98

(z) Globular and tubular beads of blue faience Marshall–*M. I. C.*; pl. CLII-15 C & D

(z^1) A thin disc shaped steatite bead – Mackay – *F. E. M.*; pl. CXXXVI-2

(z^2) Segmented beads of faience with 2, 4, and five compartments–Marshall–*M. I. C.*; pl. CXLVI-28, 29, 30

(z^3) Notched beads of steatite–Marshall–*M. I. C.*; pl. CXLVI-31, 36, 37–Mackay–*F. E. M.* pl. CXXXVI-25

(z^4) Cog wheel beads of faience – Mackay – *F. E. M.*; pl. CXXXVI-81

(z^5) Tubular beads of steatite fluted tepering–Mackay–*F. E. M.*; pl. CXI-44

(z^6) A barrel shaped bead of agate – Marshall – *M. I. C.*; pl. CL (i)

(z^7) A Chalcedony bead–Marshall–*M. I. C.*; pl. CL (i)

(z^8) Black agate bead with white veins–Mackay – *F. E. M.* pl. CXI-33

(z^9) Carnelian long barrel shaped bead–Marshall–*M. I. C.*; pl. CLI (b)–10 (necklace)

(z^{10}) A green jasper bead – Marshall – *M. I. C.*; pl. CXLVIII-A (necklace pendant)

(z^{11}) Necklace ends of copper half round with four holes–Mackay –*F. E. M.*; pl. CXXXIX-105

(z^{12A}) Semi circular terminals of faience with two holes-Marshall –*M. I. C.*; pl. CXLVII-22

(z^{12B}) Semi circular steatite terminal with wavy ends–Mackay–*F. E. M.*; pl. CXI-50

(z^{13}) Triangular terminal of faience with four holes–Marshall–*M. I. C.*; pl. CXLVII-27

(z^{14}) A bronze terminal long – Marshall – *M. I. C.*; pl. CXLIII–13

(z^{15}) A bronze terminal long–Marshall–*M. I. C.*; pl. CL - (i)

(z^{16}) A spacer of bronize with four holes Mackay–*F. E. M.*; CXXXVIII-32

(z^{17}) A copper spacer with six holes – Marshall – *M. I. C.*; pl. CXLVII-19

(z^{18}) A spacer of copper with five holes–Mackay–*F. E. M.*; pl. CXXI-38

(z^{19}) A spacer of faience with one face serrated and another straight–Mackay–*F. E. M.*; pl. CXXXIV-22

(z^{20}) A copper spacer with five holes–Marshall–*M. I. C.*; pl. CXLVII-18

(z^{21}) A decorated spacer of steatite paste–Mackay–*F. E. M.*; pl. CXXXVIII-26

(z^{22}) Tooth shaped beads of vitreous paste Mackay–*F. E. M.*; pl. CXXXVI-56, 55

(z^{23}) }A bronze clasps for girdles–Marshall–*M. I. C.*; pl. CXLIII-
(z^{24}) }27-28

(z^{25}) A faience pendant with a hole in the centre–Mackay–*F.E M.*, pl. CXXXVI-34

(z^{26}) A triangular pendant of shell – Mackay – *F. E. M.*; pl. CXXXVII-7

(z^{27}) An amulet 1·12″ high and ·53″ wide ·3″ thick of yellowish white paste–Mackay–*F. E. M.*; pl. CXXXVI-74

(z^{28}) An amulet of yellowish paste – Mackay – *F. E. M.*; pl. CXXXVI-75

(z^{29}) Another amulet–Mackay–*Ibid*–pl. CXXXVI-92

(z^{30}) A white steatite human figure amulet–Mackay–*F. E. M.*; pl. LXXXII-7

(z^{31}) An ear pendant–Mackay–*F. E. M.*; pl. CXI-53

Pl. XXVIII A

Amulets and other pieces of Jewellery from Mohenjadaro

(a) Another ear pendant of hornblende – Mackay – *F. E. M.* pl, CXXXV-8.

(b) A finger ring with seven coils of bronze wire–inside diameter ·6″ Mackay–*F. E. M.* pl. CXLII-18

(c) A bronze spacer with four holes–Mackay–*F. E. M.*; pl. CXXXVI 42

(d) A shell bracelet–Mackay–*F. E. M.*; pl.; CXLII-13

(e) A broad strap bracelet af apple green vitreous paste–Mackay *Ibid*; pl. CXLII-9

(f) A button of shell, ·82″ in diameter–Mackay–*F. E. M.*; pl. CXXXVI-70

(g) A cog wheel type paste button or bead – Mackay – p. 511– *F. E. M.*; pl. CXI 24

(h) A shell button with a design on one side–Mackay–*F. E. M.*; pl. CXL-41

(i) A disc spacer of steatite–Mackay–*F. E. M.* pl. CXXXVI-29

(j) A piece of bangle of Vitreous paste blue in colour with chevron pattern Mackay–*F. E. M.* pl. CXL-57

(k) A shell bangle–Mackay–*F. E. M.* pl. CXL-56

(l) A steatite ungent pot–Mackay–*F. E. M.* pl. CXLII-43 a. (It is not an ornament but is referred to on page 194 of the text.)

(m) A bangle of vitreous paste slightly bent in–Mackay–*F.E.M.*; pl. CXL–58

(n) A breast plate–Mackay *F. E. M.*; pl. CXL-59

(o) (p) (q) Three sided prism amulet with three scenes–Mackay–*F.E.M.*; pl. LXXXII–1, 2, a, b, c

(r) An ivory piece of inlay–Mackay–*F. E. M.*; p. 584; pl. CXXV-15

PLATE XXVIII A

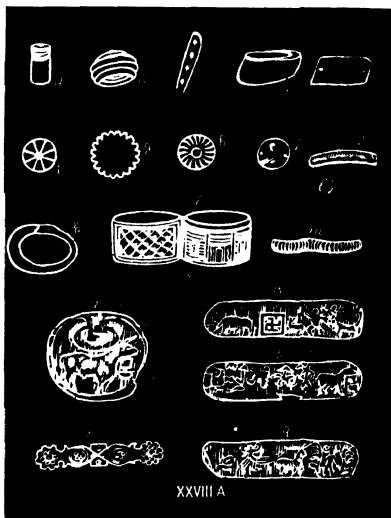
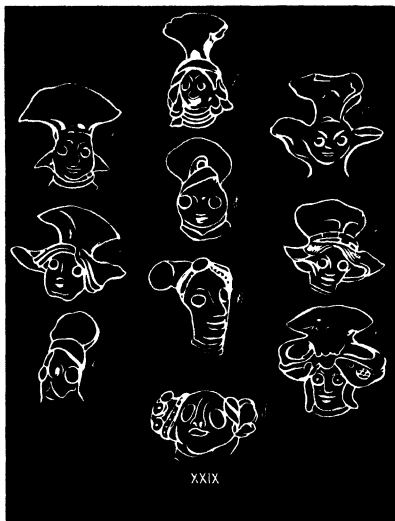



PLATE XXIX

Pl. XXIX

Head ornaments on the figurines of Mohenjadaro

(a) A fan like head ornament on a terracotta figurine–Mackay–*F. E. M.*; pl. LXXV-1.

(b) A fan like ornament with wavy edges and a fillet binding it–Marshall–*M. I. C.*; pl. XCIV-14.

(c) A fan like ornament on a terracotta figurine with panniers on sides–Marshall–*M. I. C.*; pl. XCIV-5.

(d) A fan like ornament with rounded corners and a decorated band–Marshall *M. I. C.*; pl. XCV-6.

(e) A fan like head ornament with two bands binding it to the ear ornaments–Marshall–*M. I. C.*; pl. XCV-7.

(f) A fan like head ornament with two side panniers and a decorated band binding the three pieces–Mackay–*F. E. M.*; pl. LXXV-21, 22.

(g) A round fan like ornament with a small cap like projection in front of it–Mackay–*F. E. M.*; pl. LXXV-6.

(h) A decorated fillet with a round dise on the head of another terracotta figurine–Mackay–*F. E. M.* pl. LXXV-3.

(i) A fan like ornament and a band without decoration–Mackay –*F. E. M.*; pl. LXXV-13.

(j) Head ornaments of a terracotta figurine consisting of a decorated fillet and discs Maekay–*F. E. M.*; pl. LXXV-10.

Pl. XXX

Head ornaments on the figurines of Mohenjadaro

(a) A Fan like head ornaments with a deep pannier on one side of a terracotta figurine–Marshall–*M. I. C.*; pl. XCIV-1.

(b) Head ornaments of another terracotta figurine–Marshall–*M. I. C.*; pl. XCV-8.

(c) Fillets and a central round piece of ornament on another terracotta figurine's head–Mackay–*F. E. M.*; pl. LXXV-8.

(d) *Sāfā* like head ornament on a terracotta figurine–Mackay–*F. E. M.*; pl. LXXV-19.

(e) Head ornaments of the bronze dancing girl-Marshall–*M.I.C.*; pl. XCIV-7.

(f) A fiillet with a .round piece on the head of the alabaster figure of the bearded priest – Marshall – *M. T. C.*; pl. XCVI H-3.

(j) A cap like crown on a terracotta figurine–Mackay–*F. E. M.*; pl. LXXIV-15.

(k) Head ornaments on another terracotta figurine–Mackay–*F. E. M.*; pl. LXXIII-7.

(m) Head ornament as seen on a tarracotta mask–Mackay–*F. E. M.*; pl. LXXIV-22.

(n) Head ornament as seen on another tarracotta mask–Mackay–*F. E. M.*; pl. LXXIV-25.

(o) Head ornament on a teracotta figurine–Mackay–*F. E. M.*; pl. LXXVI-5.

(p) Head ornament of the god on a seal–Mackay–*F. E. M.*; pl. C-F.

*(q) Head ornaments on a terracotta figurine–Marshall–*M. I. C.*; pl. XCV 25.

†(r) A head crown like a *Pārsi* cap – Marshall – *M. I. C.*; pl. XCIV-11.

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* The figure referred to in the last line of page 26 of the text is here (q)–an omission.

† For figure 'k' on page 27 of the text read (r)—a misprint.

PLATE XXX

PLATE XXXI

Pl. XXXI

Neck ornaments of the figurines of Mohenjadaro

(a) A collar with three oval pendants on a terracotta figurine– Mackay–*F. E. M.* pl. LXXIII-1.

(b) A collar made of two strips of metal–Mackay–*F. E. M.*; pl. LXXIII-3.

(c) A collar of two strips of metal and four pendants–Mackay– *F. E. M.*; pl. LXXIII-7.

(d) A collar with four pendants as on (c) and a *hansuli*– Mackay–*E. E. M.*; pl. LXXV-1.

(e) A collar and two necklaces – Mackay – *F. E. M.*; pl. LXXV 5.

(f) A round metallic collar–Mackay–*F. E. M.*; pl. LXXV-8.

(g) A collar with pendants and four other necklaces–Mackay– *F. E. M.*; pl. LXXV-10.

(h) Another collar with pendants and four other necklaces– Mackay–*F. E. M.* ; pl. LXXV-17.

(i) A collar of big beads and two necklaces with pendants– Mackay–*F. E. M.*; pl. LXXV-19.

(j) Necklaces composed of metallic strips swith another band to hold them-Mackay–*F. E. M.*; LXX√-14.

(k) A choker with pendants and a necklace with an oval piece in the centre–Mackay–*F. E. M.*; pl. LXXV-21.

(l) A choker with round pendants and another necklace with a round bead in the centre – Marshall – *M. I. C.*; pl, XCV-26.

Pl. XXXII

Neck ornaments on the figurines of Mohenjadaro

(a) Chokers of beads on terracotta figurine-Marshall-*M. I. C.*; pl. XCIV-1.

(b) A necklace of two strips of metal and three pendants in the form of leaves on the neck of the bronze girl-Marshall-*M. I. C.*; pl. XCIV-6.

(c) A choker with pendants and another of metallic ring along with a long metallic strip necklace on a male figure Marshall-*M. I. C.* pl. XCIV-11.

*(d) A collar made out of several metal strips twisted together-Marshall-*M. I. C.*; pl. XCV-30.

(e) Two chokers—the last with pendants-Marshall-*M. I. C.*; pl XCV-28.

(f) Several necklaces with bead pendants - Marshall-*M. I. C.*; pl. XCIV-14.

(g) A choker with pendants and another of a strip of metal-Marshall-*M. I. C.*; pl. XCV-22.

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* For figure (b) on page 105 of the text read (d)—a misprint.

PLATE XXXII

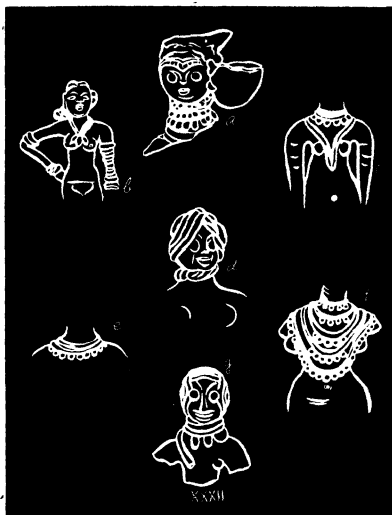
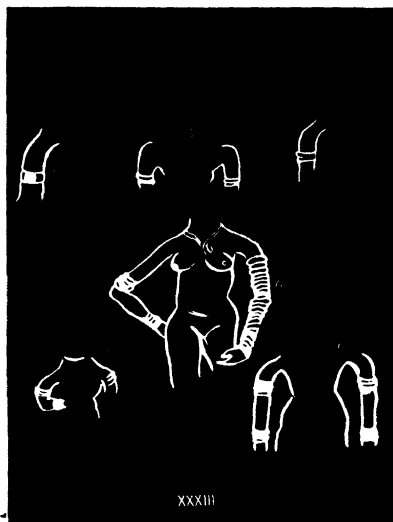



PLATE XXXIII

Pl. XXXIII

Armlets and bangles on the figurines of Mohenjadaro

(a) Bangles and armlets on the arms and wrists of the bronze figurine-Marshall-*M. I. C.*; pl. XCIV-6.

(b) An armlet with a disc on the arm of the bearded priest-Marshall-*M. I. C.*; XCVIII-1.

(c) Armlets and bangles on the hands of a terracotta figurine-Mackay-*F. E. M.*; pl. LXXV-10.

(d) Armlets and bangles on the hands of another terracotta figurine-Mackay-*F. E. M* ; pl. LXXV-5.

(e) Armlet of a terracotta figurine-Mackay-*F. E. M.* ; pl. LXXV-6.

(f) Armlets on a terracotta figure - Marshall - *M. I. C.* pl. XCIV-14.

Pl. XXXIII A

Ear ornaments on the figurine of Mohenjadaro

(a) Round earring-Mackay-*F. E. M.*; pl. LXXIII-6.

(b) Ear top in the form of a cone - Marshall - *M. I. C.*; pl. XCV-26.

(c) Ear drop on the ears of a terracotta figurine-Mackay-*F. E. M.*; pl. LXXV-21.

(d) Ear drop of another terracotta figurine-Mackay-*F. E. M.*; pl. LXXIII-4.

(e) Another type of an ear drop of a terracotta figurine-Marshall-*M. I. C.*; pl. XCIV-14.

(f) Ear drop of another terracotta figurine-Mackay-*F. E. M.*; pl. LXXV-18.

(g) Ear drop of a terracotta figurine-Mackay-*F. E. M.* ; pl. LXXIV-24.

(h) Square ear ornament on the ears of the second bronze figurine-Mackay-*F. E. M.*; pl. LXXIII-13.

(i) Disk like ear drop of a terracotta figurine-Mackay-*M. I. C.*; pl. XCV-8.

(j) Triangular earring of a terracotta figurine-Mackay-*F.E.M.*; pl. LXXIV-15.

(k) Ear top of a terracotta figurine, right ear-Mackay-*F. E. M.*; pl. LXXVI-21.

(l) Ear drop of a terracotta figurine, left ear-Marshall-*M. I. C.*; pl. XCV-28.

PLATE XXXIII A

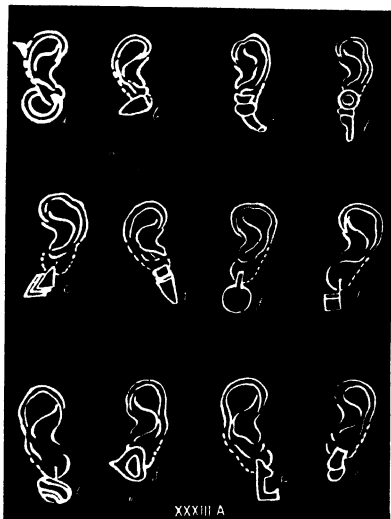
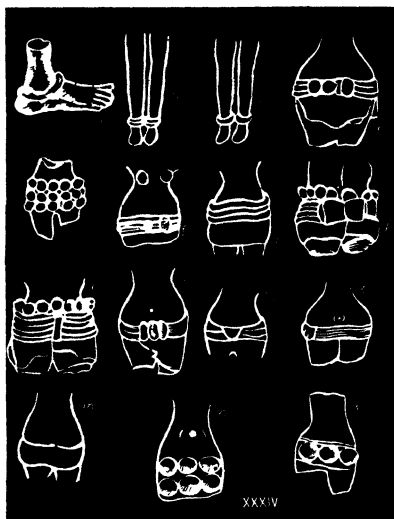



PLATE XXXIV

Pl. XXXIV

Girdles and foot ornaments on the figurines of Mohenjadaro

(a) An anklet on a bronze foot–Mackay–*F. E. M.*; pl. LXXIII-5.

(b) Foot bangles on a terracotta figurine–Marshall–*M. I. C.*; pl. XCV-26.

(c) Foot bangles on the second bronze figurine–Mackay–*F. E. M.*; pl. LXXIII-10.

(d) A girdle with three strips of metal and three bosses–Marshall *M. I. C.*; pl. XCIV-14.

(e) A girdle of three strings of big beads–Marshall–*M. I. C.*; pl. XCV-10.

(f) A girdle of four strips of metal with one boss–Marshall–*Ibid*; pl. XCV-11.

(g) Back side of a girdle of strips of metal, see (k) for the front-side–Mackay–*F. E. M.*; pl. LXXV-22.

(h) Front portion of an eleborate girdle of beads at the top and strips of metal with two bosses in front like two ears of a bow-tie–Mackay–*F. E. M.*; pl. LXXII-6.

(i) Back portion of the girdle on (h) – Mackay – *Ibid* ; pl. LXXII-5.

(j) Another girdle with three strips of metal and three bosses in front–Mackay–*F. E. M.*; pl. LXXV-17.

(k) The front portion of the girdle on figure (g). Mackay-*F.E.M.*; pl. LXXV-21.

(l) A girdle of strips of metal with a boss on one side–Mackay–*F. E. M.*; pl. XXV-5.

(m) A girdle of a plain broad band of metal –Mackay–*Ibid*; pl. LXXVI-21.

(n) A girdle of two strings of large beads or bosses–Mackay–*Ibid*; pl. LXXVI-22.

(o) A girdle of one string of large beads – Mackay – *Ibid* ; pl. LXXVI-19.

Pl. XXXV

Animal Amulets of Mohenjadaro

(a) A ram of vitreous paste–Mackay–*F. E. M.*; pl. LXXIV-6.

(b) A bird with out-stretched wings of faience–Mackay–*F.E.M.*; pl. LXXIV-9.

(c) A hare of vitreous paste–Mackay–*F. E. M.*; pl. LXXIV-20.

(d) A ram of faience–Mackay–*F. E. M.*; pl. LXXVII-13.

(e) A squirrel of Virtreous past–Mackay–*F.E.M.*; pl. LXXVII-20.

(f) A squirrel on a branch of a tree–Marshall–*M. I. C.* ; pl. XCVI-7.

(g) A ram of vitreous paste–Marshall–*Ibid*; pl. XCVII-2.

(h) A ram of steatite–Mackay–*F. E. M.*; pl. LXXVII-8.

(i) A tiny ram of faience–Mackay–*Ibid*; pl CXI-10.

(j) A bronze ibex–Mackay–*Ibid*; pl. LXXX-5.

(k) A bronze dog–Mackay–*Ibid*; pl. LXXIX-5.

(l) A monkey made of paste–Marshall–*M. I. C.*; pl XCVI-12.

(m) A crocodile of shell–Marshall–*M. I. C.*; pl. XCVI-14.

(n) A turtle of shell–Marshall–*Ibid*; pl. XCVI-15.

(o) A ram of faience–Mackay–*F. E. M.*, pl, LXXVII-9.

(p) A steatite dog like a bull mastiff–Marshall–*M. I. C.*; pl. XCVI-17.

(q) A calcite hare–Marshall–*M. I. C.*; pl. XCVII-19.

(r) A parrot of Vitreous paste – Marshall – *M. I. C.* ; pl. XCVI-2.

PLATE XXXV

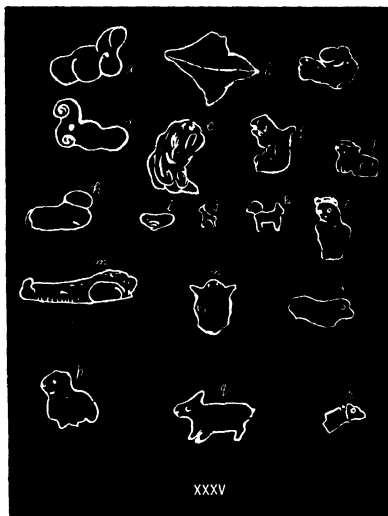
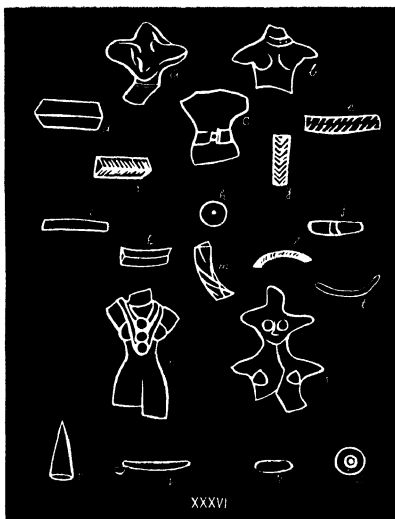



PLATE XXXVI

Pl. XXXVI

Figurines and other pieces of Jewelry from other sites of Mohenjadaro culture

(a) A Simple collar on aterracotta figurine from Pūrbāne syāl - Vats - *E. H.*; pl. LXXIV (c)-32.

(b) A decorated choker on torso of a terracotta figurine from Pūrbāne syāl-Vats-*E. H.*; pl. XXIV (c)-33.

(c) The girdle on torso of a figurine from Purbāne Syāl-Vats-*E. H.*; pl. LXXIV (c)-34.

(d) A faience bangle piece cream coloured triangular in section-Purbāne Syāl-Vats-*E. H*; pl. LXXIV (b)-1.

(e) A blue faience bangle piece round Kotta Nehang Khan with rope pattern-in section Vats-*E. H.*; pl. LXXIII-34.

(f) A blue faience bangle piece triangular with linear hatchings from purbāne Syāl-Vats-*E. H.*; pl. LXXIV (b)-4.

(g) A blue faience bangle piece with linear hatching flat surface Purbāne-Syāl-Vats-*E. H.* pl. LXXIV (b)-9.

(h) A burnt steatite disc shaped bead extra thin in section-Vats-*E.* H ; pl. LXXIV (b)-7.

(i) A bangle piece of faience round in section from Purbāne Syāl-Vats-*E. H.* pl. LXXIV (b)-6.

(j) A banded agate bead of short barrel shape-Vats-*E. H.*' pl. LXXIV (b)-11.

(k) A bangle fragment from chanhudaro-Majumdar-*Memoirs*-48; pl. XVII-40.

(l) A terracotta bangle fragment with chocolate marking from chanhudaro-Majumdar-*Memoirs 48*; pl. XVII-31.

(m) A vitreous paste bangle fragment from Lohumjodaro-Majundar-*Ibid*; pl. XXXIII-7. top.

(n) A necklace on a torso of a terracotta figurine from Lakhiyo-Majumdar-*Memoirs-48*; pl. XXXIV-6.

(o) A fan like head ornament an a terracotta figurine from Lakhiyo-Majumdar-*Ibid*; pl. XXXIV-7.

(p) A terracotta head cone from Lakhiyo-Majumdar-*Ibid*; pl. XXXIV-3.

(q) A terracotta long barrel shaped bead from Lakhiyo-Majumdar-*Ibid*; pl. XXXIII-30.

(r) A steatite tapering cylindrical bead from Lakhiyo-Majumdar-*Ibid*; pl. XXXIII-28 b.

(s) A steatite discoid bead from Lakhiyo-Majumdar-*Ibid*; pl. XXXIII-28 e.

(t) A bangle fragment of copper from Sahji kotira-Majumdar-*Ibid*; pl. XXXIII-72.

Pl. XXXVII

Bangles from Chanhudaro

(a) Bangles of round bars of copper - Mackay - *Chanhudaro Excavations;* pl. LXII-5.

(b) A pottery bangle with stripes on yellow ground–Mackay–*Ibid*; pl. LXXVII-13.

(c) A bangle of half round copper rod – Mackay – *Ibid*; pl. LXII-6.

(d) A bangle of sheet of copper turned in 'U' shape–Mackay–*Ibid*; pl. LXXIII-30.

(e) A faience bangle piece oval-Mackay-*Ibid*; pl. LXXVII-4.

(f) A bangle of round bar of copper – Mackay – *Ibid* ; pl. LXVI-2.

(g) A faience bangle piece with dental decorations on the surface–Mackay *Ibid*; pl. LXXVII-5.

(h) A faience bangle piece with linear decoration–Mackay-*Ibid*; pl. LXXVII-10.

(i) A pottery bangle piece with wavy upper surface–Mackay–*Ibid*; pl. XC-39.

(j) A faience bangle fragment decorated – Mackay – *Ibid*; pl. XC-37.

(k) A pottery bangle fragment painted – Mackay – *Ibid*; pl. LXXVII-12.

(l) A pottery bangle with several coils – Mackay – *Ibid*, pl. XC-34.

PLATE XXXVII

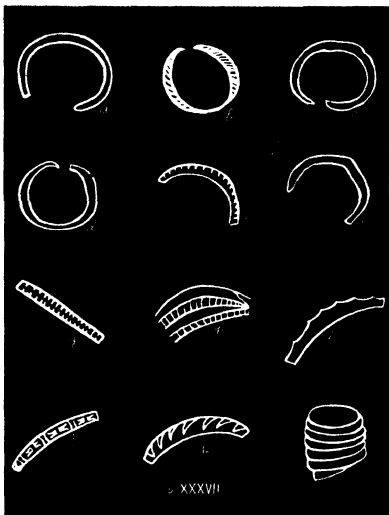
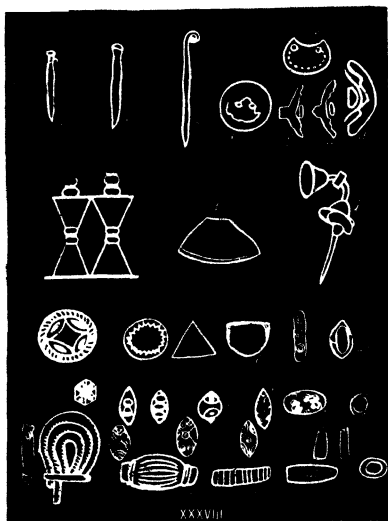



PLATE XXXVIII

Pl. XXXVIII

Hair pins, Buttons, eartops, beads from Chanhudaro

(a) A hair pin of bronze with round head Mackay-*Chanhudaro Excavations;* pl. LXVII-13.

(b) Another hair pin of bronze-Mackay-*Ibid*; pl. LXIX-6.

(c) A hair pin of bronze coiled head-Mackay-*Ibid*; pl. LXIX-10.

(d) A domad shaped button of shell - Mackay - *Ibid*; pl. LXXVIII-13.

(e) A bullae coated with a slip of red decorated with dots-Mackay-*Ibid;* pl. LXXXVIII-1.

(f[1]) A knobbed button of faience-Mackay-*Ibid*; pl. LXXVIII-5.

(f[2]) Another Button of faience-Mackay-*Ibid;* pl. LXXVIII-6.

(f[3]) Button of faience, plain top-Mackay-*Ibid*; pl. LXXVIII-3.

(g) An ear pendant-Mackay-*Ibid*; pl. LXXVIII-1.

(h) A cone like head ornament of shell - Mackay - *Ibid* , pl. XC-5.

(i) A copper ear pendant in the form of tulips-Mackay-*Ibid;* pl. LXXVIII-2.

(j) A faience ear top with a four pointed star in the centre-Mackay-*Ibid*; pl. LXXVIII-8.

(k) A faience ear top with wavy edges - Mackay - *Ibid* ; pl. LXXVIII-16.

(l) A faience terminals of necklaces triangular with four holes-Mackay-*Ibid*; pl. LXXX-24.

(l[1]) A faience terminal of necklaces semi circular-Mackay-*Ibid*; pl. LXXX-25.

(m) A spacer with three holes decorated - Mackay - *Ibid ;* pl. LXXX-12.

(m[1]) A faience spacer-Mackay-*Ibid*; pl. LXXX-16.

(n) An etched carnelian bead decorated with a design in black on white-Mackay-*Ibid*; pl. LXXIX-13.

(o) An etched carnelian bead with the figure of eight in white on red-Mackay-*Ibid*; pl. LXXIX-7.

(p) An etched carnelian bead with three circles in white on red-Mackay - *Ibid*; pl. LXXIX-8.

(q) A similar carnelian bead with two circles and dots black on white Mackay-*Ibid*; pl. LXXIX-10.

(r) Another carnelian bead with several small circles and dots-Mackay-*Ibid*; pl. LXXIX-11.

(s) An etched carnelian bead with one circle-Mackay-*Ibid* ; pl. LXXIX-1.

(t) Another carnelian bead with chevron pattern-Mackay-*Ibid*; pl. LXXIX-16.

(u) A decorated carnelian bead-Mackay-*Ibid;* pl. LXXIX-14.

(v) A decorated carnelian bead with circles and dotes-Mackay-*Ibid;* pl. LXXIX-12.

(w) A decorated carnelian bead with a set of circles with dots divided in nine compartments - Mackay - *Ibid* ; pl. LXXIX-15.

(x) A shell amulet-Mackay-*Ibid*; pl. LXXXV-29.

(x^1) A pottery amulet-Mackay-*Ibid*; pl. LXXXV-27.

(y) A brown and white jasper bead with caps on each side-Mackay-*Ibid*; pl. LXXXI-17.

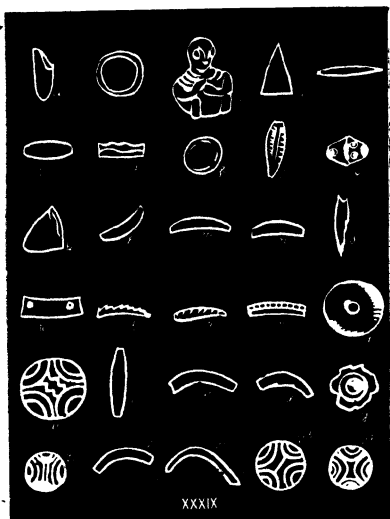
(z) A copper wire bead-Mackay-*Ibid*; pl. LXXXI-2.

(z^1) A copper tubular bead-Mackay-*Ibid*; pl. LXXXI-22.

(z^2) A shell bead-Mackay-*Ibid*; pl. LXXXVII a-1.

(z^3) A steatite pendant-Mackay-*Ibid*; pl. LXXX-26.

(z^4) A shell amulet-Mackay-*Ibid*; pl. LXXXIX-18.

PLATE XXXIX

Pl. XXXIX

Pieces of Jewelry from Mohenjadaro and other sites

(a) An ivory pin from Jhukar chocalate in colour-Majumdar-*Memoirs-48*; pl. XIX-9.

(b) A pottery bangle 2·45″ in diameter from Jhukar-Majumdar-*Ibid*; pl. XV-15.

(c) A terracotta figurine from Jhukar - Majumdar - *Ibid*; pl. XV-18.

(d) A pottery cone from Jhukar from Mohenjadaro levels-Majumdar-*Ibid*; pl. XVII-11.

(e) A lapis lezuli bead from Jhukar lower levels-Majumdar-*Ibid*; pl. XVII-9.

(f) A Jasper bead green with red and white specks-Majumdar-*Ibid*; pl. XVII-8.

(g) A vitreous paste bangle fragment with corrugated outer surface-from Lohumjodaro-Majumdar-*Ibid*; pl. XXXIII-7 Lh. 21.

(h) A copper ring from Lohumjodaro - Majumdar - *Ibid*; pl. XXXIII-27.

(i) A bone hair pin from Lohumjodaro-Majumdar-*Ibid*; pl. XXII-33.

(j) A steatite bead with circles and dots on it from the upper level of the same site-Majumdar-*Ibid*; pl. XXXIII-23.

(k) A terracotta cone like head ornament from Mohenjadaro-Majumdar-*Ibid*; pl. XXII-45.

(l) A terracotta bangle piece from Lohumjodaro-Majumdar-*Ibid*; pl. XXII-46.

(m) A terracotta bangle piece from Lohumjodaro-Majumdar-*Ibid*; p. 55-Lh. 35.

(n) A terracotta bangle fragment from Lakhiyo-Majumdar-*Ibid*; p. 77, Lk. 14.

(o) A bone hair pin from Lohumjodaro-Majumdar-*Ibid*; pl. XXII-34.

(p) A shank shell bangle piece-Lohumjodaro-Majumdar-*Ibid*; pl. XXXIII-2.

(q) A vitreous paste bangle fragment with serrated ends-Lohumjodaro-Majumdar-*Ibid*; pl. XXXIII-6, top.

(r) A terracotta bangle fragment from Rajodaro - painted with oblique lines Krishna Deva - Further Explorations in Sind - *Ancient India*. No. 5. (1949); pl. IV-52.

Pl. XL

Head Ornaments on the terracotta figurines of Chanhudaro

(a) A decorated fillet on the left side bun of a terracotta figurine-Mackay-*Chanhudaro Excavations*: pl. LIII-1.

(b) Disc shaped ornaments on the temples held together by a fillet-Mackay-*Ibid*; pl. LIV-7.

(c) A *sāfā* like crown topped with a disc at the top-Mackay-*Ibid;* pl. LIII-13.

(d) A fan like head ornament broken at the top-Mackay-*Ibid*; pl. LIII-10.

(e) A *sāfā* like crown probably of metal strips-Mackay-*Ibid*; pl. LIII-2.

(f) A turban *sāfā* like crown with a decorated fillet on the left side-Mackay-Chanhudaro-pl. LIII-8.

(g) A shaven head - Mackay - *Ibid*; pl. LIV - 9. (See-*I. L. N.* Nov. 13, 1937 p. 841 fig. 9 showing Mesopotamian costume from Khafaje)

(h) Metallic leaves arranged like a crown on the head-Mackay-*Ibid*; pl. LIII-3.

(i) Metallic *sāfā* with a disc at the top of the head-Mackay-*Ibid;* pl- LIV-6.

(j) } Turban like head dress loosely wound round the head-
(k) } Mackay-*Ibid*; pl. LIV-4, 4 a- (Two views of the same piece)

PLATE XL

Pl. XLI

Neck ornaments on the terracotta figurines from Chanhudaro

(a) A necklace of a decorated metallic strip (broken)-Mackay-*Chanhudaro Excavations*; pl. LIII-1.

(b) A collar like ornament composed of strips of metal-Mackay-*Ibid*; pl. LIII-10.

(c) A choker of large round beads like modern *Kaṇṭhā*-Mackay-*Ibid*; pl. LVIII-13.

(d) A collar composed of a strip of metal 'V' shaped-Mackay-*Ibid*; pl. LIV-9.

(e) A choker of large round beads-Mackay-*Ibid*; pl. LIII-2.

(f) A collar with beads at the top-Mackay-*Ibid*; pl. LIV-7.

(g) A necklace composed of decorated strip of metal with pendant in the form of a leaf-Mackay-*Ibid*; pl. LIII-8.

(h) A necklace composed of two strips of metal and a leaf shaped pendant-Mackay-*Ibid*; pl. LIII-7.

(i) A plain broad collar-Mackay-*Ibid*; pl. LIV-9.

(j) A 'V' shaped collar made of several metal strips-Mackay-*Ibid*; pl. LIII-12.

(k) Bangles and armlets on the arm and the wrist of a terracotta figurine-Mackay-*Ibid*; pl. LIII-1.

(l) Bangles and armlet on the arm and the wrist of another terracotta figurine Mackay-*Ibid*; pl. LIII-7.

(m) Bangles on the wrist of a terracotta figurine from Chanhu-daro-Mackay-*Ibid*; pl. LIII-3.

PLATE XLI

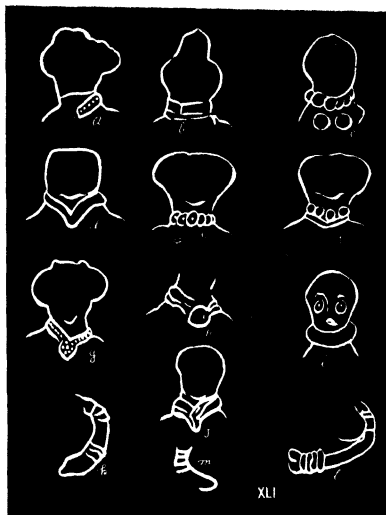
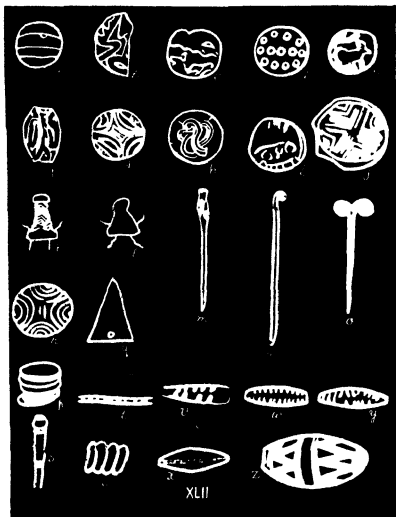



PLATE XLII

Pl. XLII

Amulets, Hair pins, Buttons and beads Jhukas period from Chanhudaro

(a) A pottery amulet marked with three linear decoration-Mackay-*Chanhudaro Excavations*; pl. XLIX-12.

(b) A glazed faience amulet with a stylised deer decoration-Mackay-*Ibid*; pl. L-10.

*(c) A pottery amulet depicting two deer - Mackay - *Ibid* ; pl. L - I4 a.

(d) A pottery amulet with lotus fruit design-Ma:kay-*Ibid*; pl. XLIX-7.

(e) A steatite amulet with the design of a deer-Mackay-*Ibid*; pl. L-1·

(f) A faience amulet with a hmman figure - Mackay - *Ibid* ; pl. L-3.

(g) A faience amulet with arcs of a circle and a rectangle in the centre-Mackay-*Ibid*; pl. L-7.

(h) A pottery amulet with a knot design-Mackay-*Ibid*; pl. L-4.

(i) An amulet depiecting three animals one over the other-Mackay-*Ibid*; pl. L-4 a.

(j) An amulet of portery with three crosses and four triangles-Mackay-*Ibid*; pl. L-15.

(k) A decorated button of faienu from Chanhudaro - Mackay - *Ibid*; pl. LXXVIII-15.

(l) A button of faience from Chanhudaro-Mackay-*Ibid*; pl. LXXVIII-12.

(m) A hair pin with chevron pattern on the top-Mackay-*Ibid*; pl. LXXII-19. (Like the hairpin from Sialk. Ghirshman-Sialk Vol. I, pl. XCV-C).

(n) A bronze hair-pin-Mackay-chanhudaro-Ibid; pl. LXXII-2I.

(o) A bronze double spiral hair pin-Mackay-*Ibid*; pl. LXVIII-9.

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* On page 108 of the text read 'c' instead of (c) in line 34,

(p) A terracotta bangle fragment from chanhudaro–Majumdar– *Memoirs*-48 pl. XVII-40.

(q) A cone like head ornament of faience–Mackay–*Chanhudaro Excavations*; pl. XXIX-67.

*(r) A faience amulet with arcs of circle and a rectangle in the centre–Mackay–*Ibid*; pl. XLIX-2.

(s) An ivory hair-pin with a mace like head–Mackay–*Ibid*; pl. LXXXIX-7.

(t) A shell inlay piece from Chanhudaro – Mackay – *Ibid* ; pl. XC-7.

(u) A copper finger ring of the coiled type–Mackay–*Ibid*; pl. LXXIII-13.

(v) A faience bead with fish scale markings–Mackay–*Ibid*; pl. LXXXVII-2.

(w) A faience bead with spinal-cord like markings-Mackay-*Ibid*; pl. LXXXVII-3.

(x) A bead of faience from Chankudaro–Mackay–*Ibid*; pl. LXXXVII-1.

(y) A faience bead with fish scale markings–Mackay–*Ibid*; pl. LXXXVIII-7.

(z) A terracotta bead of Jhangar culturse, horizontal view–Mackay–*Ibid*; pl. LXXXVII-22.

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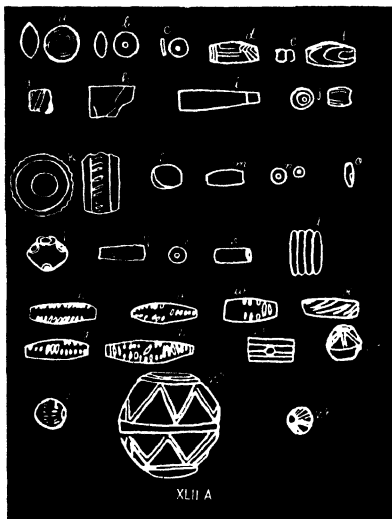
* Read (v) instead of (r) in the text on page 107, line 15 and on page 108, line 5.

PLATE XLII A

Pl. XLII A

Beads of Jhukar cultuae

*(a) A faience double convex circular bead from Harappa–Wheeler *Harappa–Ancient India No.* 3, 1947, fig. 26-2.

(b) A faience bicone circular bead - Wheeler – Harappa – *Ibid* ; fig. 26. 3.

(c) A disc shaped thin steatite baed – Wheeler – *Harappa* – *Ibid* ; fig. 26-4.

(d) An etched carnelian bead–Wheeler–*Harappa–Ibid*; fig. 26-11.

(e) A segmented faience bead–Wheeler–*Harappa–Ibid;* fig. 26-21.

(f) An agate banded long barrel shaped bead–Wheeler-*Harappa* - *Ibid*; fig. 26-12.

(g) A faience roughly cylendrical circular bead-Wheeler-*Harappa Ibid*, fig. 26-14.

(h) A steatite long cylendrical oblong bead-Wheeler–*Harappa–Ibid*; fig. 26-18.

(i) A faience long cone tubular bead– Wheeler-*Harappa* – *Ibid* ; fig. 26-20.

(j) A faience short barrel shaped bead–Wheeler–*Harappa–Ibid*; fig. 26-9.

(k) A faience-circular-bead with oblique incessions-Wheeler-*Harappa–Ibid*; fig. 26-8.

(l) A steatite bead plano convex bead from chanhudaro-Majumdar–*Memoirs 48*; p. 40. pl. XVII-23.

(m) A carnelian bead barrel shaped from chanhudaro-Majumdar *Ibid*; p. 40 pl. XVII-29.

(n) Thin steatite beads circular from chanhudaro-Majumdar-*Ibid*; p. 40. pl. XVII-17.

(o) A facetted steatite bead from Jhukar–Majumdar-*Ibid*; pl. XVII-4.

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* Read figure 'a' in the text on page 107 line 17 as pl. XLIIA fig. 'a'.

(p) A steatite bead with incised concentric circles from Lohumjodaro-Majumdar-*Ibid*; p. 58 pl. XXXIII-23.

(q) A carnelian bead barrel shaped from Lohumjodaro-Majumdar-*Ibid*; pl. XXXIII-2.

(r) A steatite bead discoid from Lohumjodaro-Majumdar *Ibid*; pl. XXXIII-19.

(s) A vitreous paste bead cylendrical Lohumjodaro-Majumdar-*Ibid*; pl. XXXIII-15.

(t) A coiled terracotta barrel shaped bead Mackay *op. cit.*; pl. LXXXVII-8.

(u) A faience bead from chanhudaro - Mackay - *op. cit.;* pl. LXXXVII-3.

(v) Faience bead from chanhudaro - Mackay - *Ibid ;* pl. LXXXVII-2.

(w) Faience bead from chanhudaro - Mackay - *Ibid ;* pl. LXXXVII-4.

(x) Faience bead from chanhudaro - Mackay - *Ibid ;* pl. LXXXVII-5.

(y) Faience bead from chanhudaro - Mackay - *Ibid ;* pl. LXXXVII-6.

(z) Faience bead from chanhudaro - Mackay - *Ibid ;* pl. LXXXVII-7.

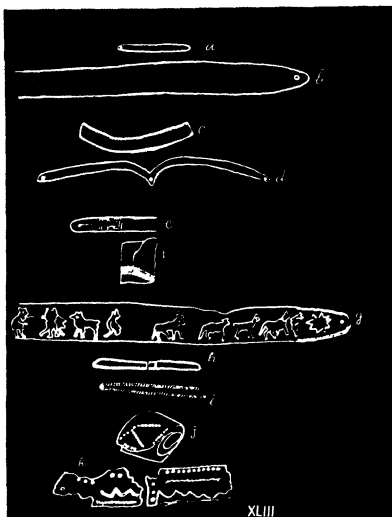
(z^1) Bead amulet of steatite-Mackay-*Ibid*; pl. LXXXVII-20.

(z^2) Clay bead with double line decotation-Majumdar-*Memoirs 48*; pl. XXXIII-71.

(z^3) Bead of teracotta from Khajur-Majumdar-*Ibid* ; pl. XXXIII-70.

(z^4) Terracotta bead with liner decoration Lakhiyo-Majumdar-*Memoirs 48*; p. 77-Lk 32.

(z^5) A terracotta bead with incised linear docoration of Jhangar culture, Chanhudaro-Majumdar-*Ibid*; pl. XVII-37.

PLATE XLIII

Pl. XLIII

Fillets of Indus valley civilisation compared with those of other sites

(a) A fillet rounded at one corner with a hole from Harappa-Vats-*Excavations at Harappa*; p. 432; pl. CXXXVII-22.

(b) A gold fillet tapering towards the end with on hole at each rounded end of Chaggarbazar (like the fillet of Mohenjodaro illustrated by Marshall *M. I C.* pl. CL1A-on the side of fig. 2.) Mallowan-*Chaggarbazar-Iraq*; III-pl. XIII-A.

(c) A gold fillet with tiny holes at the curved bottom end-Marshall-*M. I. C.*; Vol. III, pl. CLI a-1.

(d) A gold fillet with there holes in 'V' shape-Marshall-*M.I.C.*; Vol. III, pl. CLI a-6.

(e) Part of a gold fillet with dotted design-Marshall-*M. I. C.*; Vol. III, pl. CXVIII-14.

(f) Silver fillet with dots at the bottom - Mohenjodaro-Mackay-*F. E. M.*; pl. CXXXV-4.

(g) Gold fillet from 'ur' tapering towards the ends with holes on the ends, tiny holes on both sides and animals carved on the face-Wolley.—*The Royal cemetry*, pl. 139-ur 415 (British museum no. 120685).

(h) Silver fillet from 'Kish' with tiny holes on both edges-Mackay -*Report on the Excavations of the 'A' Cemetry at Kish*, p. 52, pl. IV. no. 24.

(i) A fillet with double rows of holes from 'Ras Shamra'-Schaeffer-*Syria* I; p. 144 fig. 3.

(j) A fillet decorated with dots all over from 'Hissar'-Schmidt-*Tepe Hissar*; pl- LIV-H 4112 (pl. CXXII-a, d,).

(k) A fillet decorated with holes on both edges from 'Sialk'-Ghirshman-*Fuilles de Sialk*-Vol. II, pl. LV-S. 824 d.

Pl. XLIV A

Beads of the Indus Valley civilization compared with those of other protohistoric sites

A *Central* beads of *Necklaces*

(a) Necklace central piece from 'ur'-Woolley-*Royal cemetry*. Vol. I, p. 372. fig. 79. no. 8565.

(b) Necklace central piece from Harappa-Vats *Excavations at Harappa*-p. 441, pl. CXXXIX-1.

(c) Necklace center piece from Mohenjadaro-Mackay-*Further excavations at Mohenjadaro*, pl. CXI-8.

B Beads with gold caps

(a) Bead with gold caps from 'ur'-Woolley-*Royal cemetry*, pl. 132 ur, 12474.

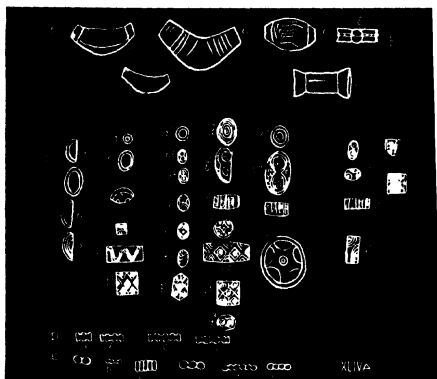
(b) A turquoise bead with gold caps from Mohenjadaro-Marshall-*M. I. C.* pl. CLI b-9.

(c) Bead from Khurab with gold ends-Stein-*Arch-Recon. N. W. India & S. E. I.*; pl. X-Khur-259.

C Etched carnelian beads

Vats-'Harappa'	'Mohenjadaro'
(d) (c) (b) (a) pl. CXXXI- fig. 4.	(a^1) Marshall pl. CXLVI-44.
	(b^1) Mackay-CXXXIV-6.
	(c^1) Mackay-CXI-4.
	(d^1) Etected-carnelian-Marshall-pl. CXLVI-45.
	(e^1) Imitation-Marshall-pl. CXLVI-42.
	(f^1) Marshall-pl. CXLVI-43.

'Chanhudaro'		'Ur' Woolley- Royal cemetry-pl. 133; p. 374-375.		
(a^2)	Mackay-pl. LXXIX-1	(a^3)	,,	,,
(b^2)	,, ,, - 7	(b^3)	,,	,,
(c^2)	,, ,, - 9	(c^3)	,,	,,
(d^2)	,, ,, - 14	(d^3)	,,	,,
(e^2)	,, ,, - 15	(e^3)	,,	,,
(f^2)	,, ,, - 16	(f^3)	,,	,,
(g^2)	,, ,, - 13.	(g^3)	,,	,,

PLATE XLIV A

Kish-'A' cemetry-	'Tell Asmar' Frankfort pl. I
(a^4) Mackay Vol. II pl. LX-57	(a^5) ,,
(b^4) pl. LX-55	(b^5) ,,
(c^4) pl. LXX-55	(c^5) ,,
(d^4) pl. LX-54	(d^5) ,,
Shah Tepe-	Hissar-
(a^6) Arne t. I. p. 289 pl. XCII fig. 612	a^7) Schmidt. p. 223 pl. XXXV-(b)
Similar to Mohenjadaro fig. (f')	Similar to Mohenjadaro fig. (f')

D Notched beads

(a) Mohenjadro-Marshall-pl. CXLVI-37.

(b) ,, Mackay-*F. E. M*. pl. CXXXIV-3.
(*Kish*-Mackay-pl. LX. 186. p. 39-40)

(c) Schmidt-*Hissar*-p. 231. pl. LXIX.

(d) Arne-*Shah-Tepe*-p. 83. 148; pl. XCII-B. 1157.

E Segmented beads of faience

(a) Marshall-pl. CXLVI-28.

(b) Marshall-pl. CXLVI-29.

(c) Marshall-pl. CXLVI-30.

(d) Schmidt-*Hissar* IIa-pl. XXXIII. p. 123.

(e) Somidt-*Hissar*-III-pl. XXXIII-fig. 133.

(f) Beck-*Nineveh*-Antiquity-Vol. V-1931 p. 429, no. 15.

*Pl. XLIV—A'

Pendants of Indus Valley compared with those of other sites

(a) A pendant in the form of a lotus-Woolley-'ur' 8565.

(b) A pendant in the form of a lotus-Vats-*Harappa*-pl. CXXXIX-7.

(c) An amulet pendant in the shape of a man of steatite-Mackay *F. E. M.*; pl. LXXXII-7.

(d) An amulet in the shape of a man-Ghirshman-*Sialk* - Vol. II-pl. XXVII-2.

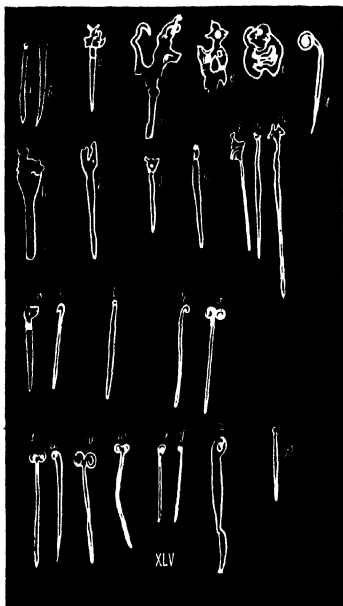
(e) A fish amulet from Ur-wooley; pl. 142-'Ur' 10844.

(f) A fish from Harappa-Vats; pl. LXXVIII-20.

(g) A pendant from Tepe Giyan-G. Contenau; pl. VI-2, p. 35.

(h) A pendant from Chanhudaro-Mackay; pl. L-15.

PLATE XLIV A'

PLATE XLV

Pl. XLV

Hair-Pins of the Indus civilisation compared with those of other sites

(a) Bronze hair-pin of Mehi-Stein-*Memoirs 43*; pl. XXXII-Mehi III. 6. 9.

(b) Bronze hair-pin of Mehi-Stein-*Memoirs 43*; pl. XXXII-Mehi. 11-2a.

(c) Bronze hair-pin from Harappa with a deer & dog at its top-Vats-*Harappa*; pl. CXXV-36.

(d) Bronze hair pin with double headed deer at top-Mackay-*F. E. M.*; pl. C-3.

(e) Hair pin top of ivory in the form of a ibex or dog-Marshall-*M. I. C.* pl. CLVIII-1.

(f) Hair pin top in the form of three monkeys clasping each other-Marshall-*Ibid*; pl. CLVIII-5.

(g) Bronze hair pin with a spiral top-Mackay-*F. E. M.* pl. C-4.

(h) Bronze hair pin with a camel at the top khurab – Stein – *Recon- in N. W. India. and S. E. Iran*; pl. XVIII - Khur. E. i. 258.

(i) Bronze hair pin with a bird at the top from Hissar-Schmidt' *Museum Jour. Chicago* Vol. XXIII-p. 422 pl. CLII.

(j) Bronze pin with a dove at the top from Susa-*Mémoire Délegation en Perse*; pl. XVV-p. 34.

(k) Bronze pin with a bear like animal at the top from Chaggar bazar-Mallowan-*Iraq*-III 1936 p. 134 fig. 22.

(l) A bronze hair pin with a dog like animal at the top from Luristan. Hancer-*E. S. A.* Vol. IX p. 101. fig. 42. p. 113, 183.

(m) A bird headed hair pin from Chingabal, N. W. Iran - Stein Old routes of *W. I.*-pl. XV-10-11.

(n) A double headed goat at the top of a bronze hair pin. Chaggar bazar-Mallowan-*Iraq* Vol. III-p. 27 fig. 8.

(o) A dog headed hair pin of ivory from Mohenjadaro-Mackay-*F .E. M.*; pl. XCI-27.

(p) An ivory hair pin with the stylised head of a bird-Mackay-*F. E. M.* pl. XCI-28.

(q) Ivory hair pin from Bander Buchire-Pézard-*Bander Buchire* pl. VIII-23.

(r) Bronze hair pin from Chanhudaro-Mackay-*Chanhudaro*; pl. LXXII-22.

(s) A double spiral headed hair pin from Chanhudaro–Mackay–*Ibid*; pl. LXXV-6.

(t) A double spiral headed hair pin from Hissar III·A-Schmidt; pl. LIII–p. 205.

(u) A bronze pin with rolled head from Hissar III A–Schmidt; pl. XLVII.

(v) Another double spiral Hair-pin from Hissar-Schmidt. *Hissar* pl. CIV.

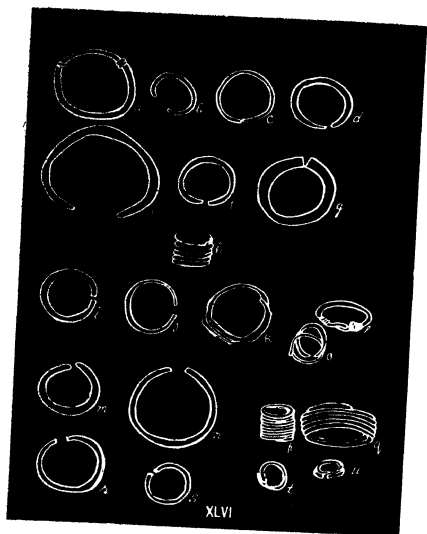
(w) A double spiral headed bronze hair–pin of sialk–Ghirsman–ouilles de Sialk I-vol. I pl. XCV-b.

(x) A bronze hair pin rounded at the top one from sialk–Ghirsh-man–Vol. I pl. XCIII-S. 1440.

(y) A bronze hair pin with just rounded head from sialk-Ghirsh-man–Vol. II pl. XXIX-2.

(z) A bronze pin rounded head from Shah Tepe – Arne – p. 301-302.

(z^1) A bronze hair pin from Turang Tepe–Wulsin–p. 12 pl. XIX.

PLATE XLVI

Pl. XLVI

Bangles of Indus Valley compared with those of other sites

(a) A bangle from Moghal Ghundar with adjustable ends–Stein–*Memoirs*-37, pl. XII-M-vi.

(b) A bangle with cut end of gold from Harappa–Vats–*Harapp*; pl. CXXXVII-1.

(c) An armrlet with cut ends of gold from Harappa-Vats-*Harappa*; pl. CXXXVII-14.

(d) A bangle of silver with tapering rounded ends Vats-Harappa pl. CXXXVII-4.

(e) Copper bangle with tapering rounded ends of round bar from Mohenjodaro-Marshall–*M. I. C.*; pl. CXLIV-11.

(f) A gold bangle with tapering cut ends–Marshall–*M. I. C.*; pl. CLI a-3.

(g) A silver bangle with cut ends–from Mohenjadaro–Mackay–*F. E. M.*; pl. CXXXV-13.

(h) Coiled pottery bangle from Chanhudaro-Mackay *Chanhudaro* pl. XC-34.

(i) Gold bangle with cut ends-Woolley–*The Royal Cemetry*–pl. 147. 'ur' 17912.

(j) Another bangle with cut end-Woolley–*The Royal Cemetry*–pl. 147. 'ur' 17813.

(k) A coiled bangle bronze from 'Kish'–Mackay–*'A' cemetry* Vol. I, pl. XX–14 a p. 53.

(l) Bangle of bronze with adjustable ends-Mackay–*'A' cemetry* Vol. II pl. LIX-22 No. 2692.

(m) A bronze bangle with tapering rounded ends from Susa–Macquenem–*Antiquity*-Vol. V, p. 337.

(n) A bronze bangle with cut end from Ras Sharma–ugarit. Schaeffer–Stratigraphie Comparéc pl. XII *Opp.* p. 23.

(o) A bronze bangle from Kish with cut ends-Mackay–*'A' cemetry*. Vol. II, pl. XLIII–9.

(p) Bronze coiled bangle from Hissar 12 coils Hissar III-Schmidt-Hissar–pl. LIII–H. 4263.

(q) Bronze coiled bangle from Hissar II– Schmidt–Hissar – pl. XXVIII-H. 2169. p. 120.

(r) Bronze bangle with cut ends from Tepe sialk–Ghirsman – pl. XLIV-6.

(s) Bronze bangle with cut ends from Gyan-Contenau-Tépé Gyan pl. 11-5.

(t) Bronze coiled finger ring from Gyan – Contenau – *Ibid*; pl. 6–19.

(u) Coiled finger ring of Bronze from Sialk – Ghirshman – pl. LXXIII-S. 941.

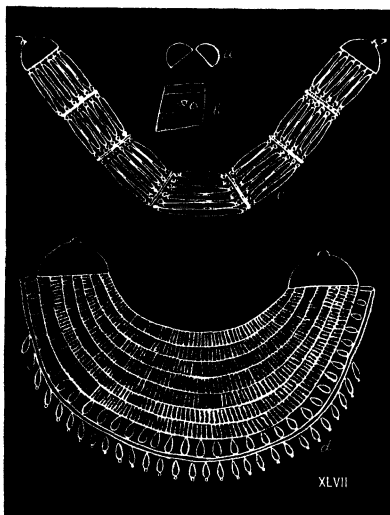



PLATE XLVII

Pl. XLVII

Necklace ends of the Indus Valley compared with those of other sites

(a) Necklace ends from Mohenjadaro–Marshall–*M. I. C*·; pl. CXLIX·1, 2–(See Pl. XXIII–c, d).

(b) Necklace end from Tépć Douecya-Mackay-*Antiquity*–Vol. V. p. fig. 10. p. 463.

(c) Necklace with semi.circular ends from Mohenjadaro–Marshall–*M. I. C.*; pl. CLI b - 10 (See Pl. XXII–a).

(d) Semi circular ends of a neckace from Egypt–E'mile Vérnier–*La Bijouterie*; pl. V.

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* Read XLVI instead of pl. XLVII in the text on page 184 line 13.

Pl. XLVIII

Figurine on the gold plaque of Piprawa wearing heavy jewellery. There is however no ornament on her nose.

PLATE XLVIII